PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off
Vol. 112, No. 13 Thursday, March 27, 1941 Price Ten Cents

Current Aspects of Wood Pulp Situation

American Paper and Pulp Association In Analysis of Current Pulp Supply Shows Total Stocks of Purchased Pulp Decreased From April, 1940, to January, 1941, With Unbleached Sulphite Scarce.

The current surveys of paper and paper board stocks of purchased wood pulp, made by the American Paper and Pulp Association and the National Paperboard Association, together with the data on pulp mill stocks and operations which are available through the United States Pulp Producers Association, have now made possible a comprehensive analysis of the over-all pulp situation.

The data presented pertain exclusively to paper grades of sulphite and sulphate pulp, rayon grades, soda and mechanical pulps being excluded. These data deal only with purchased wood pulp; pulp produced and used in self-contained mills is not included in the discussion, although data concerning self-contained mills purchasing part of their pulp requirements are included.

Purchased Pulp Stocks Decline

Since early in 1940 total stocks of purchased pulp have shown a steady month-to-month decrease. Most of the decrease occurred in paper and paper board mill stocks, which, between April 1, 1940 and January 1, 1941 were decreased 199,000 tons. Dock stocks during the same period showed a decrease of 187,000 tons. Pulp mill stocks for sale to domestic markets, although varying from month to month, showed only a small change between April 1 and January 1. Total reduction of paper mill stocks, dock stocks and pulp mill stocks amounted to 391,000 tons during the period, or an average of about 43,000 tons per month. The greatest monthly reduction occurred during the second and third quarters of the year, and since October, reductions have been minor in quantity.

Since April, 1940, the quantities of pulp received from Europe have been negligible, being limited almost entirely to an occasional cargo from Finland via Petsamo. Canadian imports have varied since January from 38,000 to 54,000 tons, the highest level having been established in July. Domestic shipments to the United States market varied from 64,000 to 93,000 tons, reaching the higher figure in June. During each month since February the supply has fallen below the estimated average monthly consumption for the last nine months of 1940, the smallest deficit, 26,000 tons, occurring in April, and the largest, 61,000 tons, occurring in October. The total deficit from April 1, 1940 to January 1, 1941 amounted to 391,000 tons, or 43,000 tons per month, which was met through depletion of mill and dock stocks.

Important Points To Be Considered

In analyzing the data presented above, several considerations assume importance both by themselves and by their implications. For instance, too much importance can easily be attached to the reduction in mill and dock stocks, as far as the over-all situation is concerned. It is probable that much of this drain occurred as a result of the relationship existing between pulp and paper prices. Most of these stocks were purchased at price levels considerably below current prices, and in view of unsatisfactory paper prices prevailing throughout 1940, it was to be expected that paper manufacturers would use as much of their low-cost pulp reserves as would be consistent with good cost accounting practices.

One additional important point in respect to dock and mill stocks should not be overlooked. The reserves accumulated during the last quarter of 1939 and the first quarter of 1940 provided a backlog which could be drawn on during 1940, and gave North American pulp producers an opportunity to increase their production to meet the exigencies of the situation. It is quite possible that as a result of national defense and industrial requirements, the paper industry may be called upon to meet extraordinarily heavy demands for paper during 1941. If pulp stocks are allowed to diminish to the point where reserves are insufficient to meet such a demand, a critical shortage might develop for a few months before domestic and Canadian producers could step up production and shipments necessary to meet this excessive drain on stock reserves.

Current additions to stocks during 1940 fell short

(Continued on page 15)

Waste Material Dealers Hold Convention

National Defense Problems Leading Subject At Annual Meeting of the National Association of Waste Material Dealers At Chicago — Importance of Waste Paper and Price Stabilization Discussed.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 24, 1941—National defense problems dominated the annual meeting of the National Association of Waste Material Dealers held in Chicago this week. The three day conclave of waste material executives brought a large attendance attracted by the unusual problems confronting the various industries.

One of the highlights of the sessions was a report on the importance of waste materials to America's armament program as outlined by W. L. Finger of the Office of Production Management. While the situation described fitted the waste paper industry only indirectly, the speaker did point out several essentials to the production of materials required in rearmament as well as in housing where paperboard is used. Waste materials should be kept moving with efforts intensified to step up volume, prices should be kept within bounds by advoidance of speculation and materials should be properly sorted and graded according to the speaker. The speaker pointed out that Britain, last year, collected 40 shiploads of waste paper and utilized their waste materials to the best possible effect. Mr. Finger indicated that at this time there is no need for a general appeal to the public for waste materials.

C. W. Boyce Talks to Paper Stock Men

The Waste Paper Institute held an interesting meeting on March 19 with leading waste paper merchants from many cities in the audience. The leading speaker was Charles W. Boyce, formerly executive secretary of the American Paper and Pulp Association and now Assistant Chief of the Pulp and Paper Unit of the Office of Production Management in Washington. Mr. Boyce ably described the importance of waste paper not only in defense uses but in maintaining an even keel in the general paper market. He stressed the importance of orderly and continual cooperation to aid in eliminating the dangers of speculation and over regulation of industry. Following Mr. Boyce's talk a general discussion of problems existing in the waste paper industry brought out a number of questions and answers clearly indicating the increasing "tightness" of the pulp market, the growing usage of waste papers in defense work as witnessed by experiences of warring countries and the need for a strongly knit Association to do the job.

Further emphasis on the defense problem was in evidence early in the session when Harry S. Goldstein, president of the Association and C. M. Haskings, managing director, directed the attention of members to the importance of waste or secondary raw materials in the national defense program. Both speakers sounded the keynote of the meeting at the opening sessions.

Price Situation Discussed

Donald Wallace, member of the Price Stabilization Division of the National Defense Advisory Commission, utilized a part of the March 18 meetings to point out that the government is already concerned over the price situation. In emphasizing the Government's desire for reasonable prices to avoid inflation, Mr. Wallace listed seven reasons why inflation benefits no one. They were (1) inflation increases the cost to the Government of defense materials (2) fixed dollar incomes are at a serious disadvantage in periods of a severe inflation (3) wages do not always increase as rapidly as the prices of things bought by wage earners (4) in business, prices increase faster than costs and sometimes exceed the rises in costs (5) wage and price disparities vary proportionately in amounts and timing (6) production efficiency is impaired in periods of inflation and (7) the inevitable aftermath of inflationary periods is inevitably a disastrous deflation. The speaker said he had no criticism to make of most waste material dealers.

Specific Problems Talked Over

On March 19, the waste paper industry again found time to concentrate on some of its specific problems when the Associated Rag Industries held a meeting in conjunction with the N.A.W.M.D. convention. At this meeting, held on the morning of the 19th, Mr. C. B. Overton, vice-president and treasurer of Castle & Overton, Inc., led an analysis and discussion of the important legislation before Congress which may affect the rag and paper industry. Chief of these legislative proposals was the bill proposed by Representative Fulmer, chairman of the House Committee on Agriculture which would have a widespread effect on the rag and paper industry and its production procedure.

The meeting brought out further hopes for self-regulation and policing to prevent government regulation and domination of the industry.

The waste material dealers even carried the war defense theme into outside attractions through the presence of Clifford M. Utley, director of the Council of Foreign Relations, as the speaker at one of the feature luncheons. Mr. Utley spoke on the present international situation and urged the use of American naval vessels to convoy vital supplies from this country to Britain.

Advocates Increased Pulp Production

During the week Chicago press circles prominently displayed a statement from Alexander Calder, president of the Union Bag and Paper Corporation, who urged increased operations of pulp mills in this country to offset losses in the supply of wood pulp from Scandinavian and other sources. "Although the bag and paper markets have not yet felt any material effects from the war," pointed out Mr. Calder, "the rapidly diminishing stocks of foreign pulp would have seriously affected the company during 1940 had not additional production been in evidence."

Louis Lippa, Apex Smelting Company, Chicago, was elected president of the Association at the close of the sessions.

Bowater Sulphite Mill Starts Production

New $4,000,000 Pulp Plant of the Bowater Newfoundland Pulp and Paper Mills Opened By Governor of Newfoundland — Will Produce 30,000 Tons Annually—Consolidated Corp. Plans Addition

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 24, 1941—The new $4,000,000 sulphite plant of the Bowater Newfoundland Pulp and Paper Mills was formally opened on Thursday last by Sir Humphrey Walwyn, Governor of Newfoundland, who, in the presence of a representative gathering, pressed an electric button that set the machinery in motion. Welcoming the Governor to the plant, which is situated at Cornerbrook, near the company's huge paper mills, General Manager Lewin emphasized the fact that the plant's entire machinery was brought across the Atlantic from Britain without loss of a single nut or bolt. In reply, Sir Humphrey said he "keenly appreciated" the establishment of a new enterprise on the colony's West Coast.

Output 30,000 Tons of Pulp Yearly

The plant will turn out 30,000 tons of sulphite pulp annually. The industry is the result of a 1938 agreement whereby Bowater acquired timber areas in the Gander Lake district, giving rise to the hope a new newsprint plant would be established on the Northeast Coast. This was found not feasible.

The contract eventually provided for the Cornerbrook extensions whereby the output of the paper mills would be increased by 30,000 tons annually and the sulphite plant would be opened.

The agreement also gives the company the right to cut for export 50,000 cords annually and four years after the plant is in operation, to cut for export an additional two cords of raw wood for every ton of sulphite manufactured and half a cord for every ton of paper in excess of the company's normal capacity.

In addition to the sulphite plant, Bowater's have completed a pier capable of berthing three ships at the same time.

Tax Relief for Paper Companies

Marked strength in the prices of paper stocks on the Montreal Stock Exchange is associated with a rumor that the government has decided to assist these companies in income and other taxes. Such special consideration might be given, through a ruling by the tax referee board that the industry can be classed as "depressed" and thus exempt from full application of the 75 per cent excess profits tax.

Both the Newsprint Association of Canada and individual companies have filed applications with the tax board, asking for classification as "depressed" businesses. Inasmuch as most companies made little or no profit in years immediately prior to the war, their case would appear a strong one, particularly as the excess profits taxes as well as other taxes, if applied to full extent, would take up most of current earnings and leave relatively little for stockholders, who have waited many years for a return on their investment.

An added claim is the importance of the industry in securing U. S. exchange. This year the newsprint industry is expected to bring in some $140,000,000 in U. S. exchange to this country, and in this respect is vital to the country's war effort. Whether it can be established that special tax concessions to newsprint producers would increase the flow of U. S. exchange to this country might be a question, but the industry's importance to the country is being stressed in efforts to obtain special tax treatment.

Favorable Prospects

Favorable to prospects for special government tax arrangements with the newsprint industry is the fact that other countries are recognizing the unfairness of applying a rigid tax ruling to all companies and all industries, and also are showing awareness of the fact that any law which tends to discourage investment and private enterprise may "kill the goose that lays the golden egg." The United States, for instance, is now planning to adjust its tax program so as to permit "growth" companies to retain a fair amount of increased income. Similarly Britain is adjusting its taxes so far as possible so as not to kill off private enterprise and initative.

Consolidated Plans Addition

The Consolidated Paper Corporation is reported to be planning a one-story addition to its mill at Cap de la Madeleine, near Quebec, at a cost of over $75,000, including equipment. The mill has a capacity for the production per day of 518,000 lbs. of newsprint, and 40,000 lbs. of wrapping paper.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 26, 1941—Government Printing Office has received the following bids for 6,000 rolls of No. 1 kraft paper tape; Resolute Paper Products company, 12⅓ cents per roll; Enterprise Paper Company, 14.17 cents less 2%; R. P. Andrews Paper Company, 14.2 cents; Nashua Package Sealing Company, 12.5 cents less 2%; Paper Manufacturing Co., Inc., 12.9 cents; M. S. Ginn & Company, 11.62 cents less 2%; Mathers-Lamm Paper Company, 11.99 cents; Gummed Tape and Devices Company, 12.75 cents less 3%; Brown Bridge Mills, Inc., 12.675 cents; McLaurin-Jones Company (1 inch), 8.6 cents; and Superior Paper Company, 11.85 cents.

For 9,000 pounds (1,000,000 sheets) of 8 x 10½ white mimeograph bond paper; R. P. Andrews Paper Company, 8.4 cents; and Stanford Paper Company, 9.5 cents.

For 2,000 sheets of 20 x 26 glazed paper; Whitaker Paper Company, $10.40 per M sheets; R. P. Andrews Paper Company, $11.40; Mudge Paper Company, $15.00; and Mathers-Lamm Paper Company, $15.00.

For 55,000 pounds of 32 x 48 white sulphite writing paper; R. P. Andrews Paper Company, 5.71 cents; Barton, Duer & Koch Paper Company, 5.39 cents; Old Dominion Paper Company, 7.049 cents; Eastern Corp., 5.98 cents; and Mathers-Lamm Paper Company, 6.18 cents.

Consolidated Is Completing Improvements

Expansion of Facilities At Plant of Consolidated Water Power & Paper Co. Includes More Finishing Room and Modernization of Paper Machine In Operation 37 Years — Other Industrial News

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 24, 1941—Expansion and improvements undertaken by the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., to take care of increasing production demands are nearing completion, officials announced last week.

The major enlargement was an addition to the finishing room, a three-story unit 48 by 259 feet erected at the south end of the plant. This building will soon be ready for use, and will provide increased space for sheet finishing and storage of paper, with ample and efficient facilities for truck loading.

Modernization of No. 2 paper machine has been completed, and it is back in operation again. It was brought into line with coated paper production methods developed in the last few years by Consolidated, whereby coating is done right on the paper machine itself. The machine has been lengthened by the installation of extra dryers, resulting in an appreciable increase in speed and production. Another super calender is being installed to provide for the conversion of the extra tonnage.

No. 2 Machine 37 Years in Service

No. 2 machine has spanned nearly four decades of paper manufacture at Consolidated. It was installed 37 years ago, one of the two original machines placed in production when the mill was started. George M. Hill, who was present to see the initial paper come off the dry end in 1904, was the only original stockholder present to witness the resumption of production after remodelling.

The building housing Nos. 1 and 2 machines has also been improved by construction of a new treated roof on steel trusses. It provides 12 feet of additional head room, better ventilation with improved heat recovery of exhaust air and extra capacity in drying. The machines are being equipped with economizers designed for efficient and economical drying and ventilation. Other new facilities for stock and roll handling are being added, including a crane. Production on both machines will be speeded up as a result of these improvements. A fifth boiler has been put into service, resulting in a 50 per cent increase in steam production.

Safety Conference Meets May 22

Plans for the annual Fox River Valley and Lake Shore Safety Conference to be held at Fond du Lac, Wis., May 22, were completed at a meeting of 23 persons, including officers and sectional chairmen, at that city March 20.

There will again be a sectional meeting devoted to the paper and pulp and allied industries. A. J. Long of Green Bay, Wis., will be the chairman of this section, and is working for a larger attendance than ever among Fox River Valley paper mills.

Sectional meetings will be held in the morning, and general sessions in the afternoon at which Voyta Wrabetz of Madison, Wis., chairman of the Wisconsin Industrial Commission, will preside. A banquet will be held in the evening, with a prominent speaker, after which visitors will attend a firefighting demonstration and baseball game at the fair grounds.

Mill Must Pay Damages

The Wisconsin Supreme Court has affirmed a judgment for $2,965.49 against the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. in favor of P. O. Virum and Dr. G. W. Reis. These men are owners of a farm along the Wisconsin River near Stevens Point, Wis. They sued for damages alleged to have resulted from the raising of the level of the Stevens Point dam in 1931. The company had appealed the case from a judgment in circuit court a year ago.

Engineers Hear Safety Talk

The Engineers Club of Kimberly-Clark Corporation, Neenah, Wis., held a dinner and meeting March 19 at Hotel Appleton, Appleton, Wis. The speaker was E. A. Page, of the company's industrial relations department, whose message was on safety.

Roy Purdy Heads Tuttle Press

Roy H. Purdy has been elected president of the Tuttle Press Company, Appleton, Wis., to succeed A. F. Tuttle, who died in California recently. He is general manager of the company, and formerly was vice-president and treasurer. He also retains the office of treasurer. William E. Buchanan, formerly secretary, has been elected vice-president. The secretary's office was filled by the election of L. R. Watson, who has been with the company for about 26 years and has been sales manager since 1932. He was also made a director of the company. R. Hampton Purdy was elected assistant secretary and treasurer.

Mr. Tuttle's will has been filed for probate in the Outagamie County court, and lists real estate in excess of $5,000 and personal property in excess of $5,000. The widow is the sole beneficiary, with the understanding that $3,000 will be paid to the Appleton Masonic Temple Association out of the first $25,000 of dividends she receives from his stock in the Northern Paper Mills, Green Bay, Wis., of which he was a director.

Hearing on Patten Paper Co.

A hearing is scheduled for March 31 in the Eastern District United States Court at Milwaukee, Wis., for a final determination in liquidating the assets of the Patten Paper Company, Ltd., Appleton, Wis., under the United States Bankruptcy Act. The company has been defunct for a number of years. Approval will be sought for the reports of Paul V. Cary, trustee, and W. L. Evans, special matter, covering claims of creditors, sale of the remaining assets, allowance of the trustees' accounts, and a final decree determining the persons entitled to receive the moneys in the hands of the trustees.

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BIRD SCREENS

N. E. TAPPI Presents Quiz Program

The New England Section of the Technical Association of the Pulp and Paper Industry in its meeting of Friday, March 21 presented a program worthy of a place on the famous "Information Please" hour of the radio. It is doubtful, however, if any of the regulars on "Information Please" could have answered many, if any of the questions that were tossed to the All Star Panel of the Yankee TAPPI. Norman I. Bearse of the Champion-International Company, Lawrence, Mass., presided as chairman.

The panel of experts included H. O. Hisey, New York State College of Forestry; J. J. Healy, Monsanto Chemical Company; J. A. DeCew, Consultant; W. F. Hoffman, Fitchburg Paper Company; O. L. Lane, Krebs Pigment and Color Company; Lester Crouse, Penick & Ford, Ltd., Charles Champion, Millers Falls Paper Company; W. L. Foote, B. F. Perkins & Son; W. L. Cassiday, American Writing Paper Company; Fred Soderberg, General Dyestuffs Company and R. G. Macdonald, Secretary of TAPPI.

Each member of the panel was introduced by Chairman Bearse and asked a question previously sent in by a member of the Section. The questions:

Q. Explain why it is harder to size rag stock than sulphite.

A. Dr. Hisey: The purer the fiber the more difficult it is to size.

Q. How do you eliminate two sidedness when using pigment colors?

A. Mr. Lane: Two sidedness can be minimized but not eliminated irrespective of the pigment color used.

Q. What is the most suitable kind of a slice for a fourdrinier, 107 inches wide running on book and bond paper at 300-450 ft. per min.?

A. Mr. Champion: There is no general answer to this question but if there are to be frequent changes of specifications the Thiele slice gives good results.

Q. Are mills using sodium aluminate doing so more for pH control than for increasing the retention of filler and short fiber on the wire?

A. Mr. Healy: It is used for both purposes. It regulates pH which influences retention.

Q. Why isn't potato starch used to any great extent in the paper industry?

A. Mr. Crouse: It can be used successfully but it is too expensive at present.

Q. What are some of the blue dyes that are resistant to alkali?

A. Mr. Soderberg: Pigment type dyes of the thiocyanate group.

Q. Can anything be done to rectify rosin spots when found in a paper sheet?

A. Mr. DeCew: Nothing can be done to rectify them. There is no good excuse for their appearance. Good emulsification is easily obtainable.

Q. Are many using the spectrophotometer for color matching?

A. Mr. Soderberg: There are only a few spectrophotometers in the industry. For practical purpose a good color eye gives quicker and as satisfactory operating results.

Q. Does pH affect formation?

A. Mr. Healy: pH and alum are related to freeness. Better retention is obtained at higher pH.

Q. What is the best way to add starch to the beater?

A. Mr. Crouse: Add starch before size to get the best colloidal action. Particle size arrangement of the starch is an important consideration.

Q. Do hand sheets have merit in indicating mill operation?

A. Dr. Hoffman: By making hand sheets of stock going to and leaving beaters and jordans and in head box it is definitely possible to evaluate the work being done on the stock.

Q. What methods are recommended for testing the degree of sizing of bonds and ledgers?

A. Mr. Cassiday: The News and Fluorescent Testers are effective.

Q. Is aluminum foil satisfactory for checking the Mullen tester?

A. Mr. Foote: It is better than paper since it is more uniform in thickness and not subject to changes due to humidity.

Q. What is a good cleaning agent for fourdrinier wires?

A. Mr. Cassiday: Sulphuric acid with an inhibitor.

Q. How does the New England TAPPI compare with other TAPPI Sections?

A. Mr. Macdonald: All of the TAPPI Sections are top notch. Each has a different character due to local conditions and independence of administration. No section excells the New England TAPPI thanks largely to the untiring and competent efforts of Helen Kiely and the other excellent officers that the Section has had since its inception.

The next meeting will be held on April 25th. The speakers will be M. S. Kantrowitz, Government Printing Office; Lew Reid, Metropolitan Life Insurance Company; George Harriden, General Electric Company and Warren Embry, National Bureau of Standards, members of Committee D-6 of the A. S. T. M. who will discuss "Paper Standards."

Those in Attendance

Those present included: William Anderson, E. W. Ballou, N. I. Bearse, R. G. Betts, J. W. Burke, Arthur M. Brooks, Jack Brougham, S. A. Brunnell, Joseph Burgen, Edwin Bieniek, Robert Burke, Walter J. Cassidy, Chas. Champion, N. D. Cunningham, H. S. Chellis, Chet Child, Mr. and Mrs. L. W. Crouse, Fred Cassidy, Walter Cooper, A. F. Cosby, Ralph Carter, Mr. and Mrs. C. W. Damon, Charles Davidson, Jr., J. A. DeCew, Miss A. Ruth Dineen, Harry Duston, Edward Doyle, James Fitzgerald, Howard Ferguson, Herb. Federhen, Jim Fish, Thomas Flaherty, W. L. Foote, William J. Glendon, Fred C. Grant, Arthur B. Green, J. J. Healy, Jr., W. O. Hisey, W. F. Hoffman, Chas. I. Horton, T. W. Hungerford, Jr., O. F. Hutchinson, Ralph Irwin, A. P. Jackson, Dr. Werner Kaufman, John P. Kennedy, N. M. Kennedy, Helen N. Kiely, R. E. Kilty, Lena E. Kelly, Alber D. King, Albert C. Lamourex, O. F. Lane, Joe Levis, Ernest M. Loveland, J. T. Lowe, Fred W. Lyon, Mr. and Mrs. Leonard, Ronald Malloch, Harold Miller, Timothy Murphy, J. J. McDonald, R. G. Macdonald, Milton J. Maguire, Mr. and Mrs. Gustav E. Mangsen, John C. Marrone, Jack McKela, Ollie W. Messner, N. L. Nourse, F. W. O'Rourke, H. A. Otto, J. P. Phelps, A. L. Perry,

Harold D. Pugsley, R. Pattison, R. J. Proctor, Mr. and Mrs. James B. Ramage, John F. Reardon, C. L. Reece, E. O. Reed, E. F. Reid, Fred W. Schmid, Harry W. Schwartz, P. S. Sinclair, Richard M. Sinclair, Chas P. Slocum, Donald M. Smith, L. N. Smith, T. L. Stirling, E. Whitman Strecker, John Studney, George Sullivan, Charles Taugher, B. E. Teale, Edward R. Timlowski, E. N. Wennburg, C. A. Weymouth, Charles H. Wilson, Mr. and Mrs. J. F. Wright, and Chester Willette.

TAPPI Nominating Committee Appointed

The executive committee of the Technical Association of the Pulp and Paper Industry has appointed the following to serve on the nominating committee to prepare a slate of officers and executive committeemen for 1942:

Principals: A. H. Johnson, Johnson & Wierk, New York; N. Y., Chairman; E. G. Ham, John A. Manning Paper Company, Troy, N. Y.; T. M. Chemerys, Riegel Paper Corporation, Milford, N. J.; E. P. Ingalls, S. D. Warren Company, Cumberland Mills, Maine; W. F. Hathaway, Kalamazoo Vegetable Parchment Company, Parchment, Mich.. Alternates: Roderick O'Donoghue, New York, N. Y.; R. F. Huntley, Sealright Company, Inc., Fulton, N. Y.; K. P. Geohegan, Aetna Paper Company, Dayton, Ohio; H. T. Barker, Bird & Son, Inc., E. Walpole, Mass.; and Harry Bradford, Rex Paper Company, Kalamazoo, Mich.

The officers and executive committeemen whose terms expire in February 1942 are as follows: President—W. H. Swanson; Vice President— R. A. Hayward; Executive Committeemen—V. P. Edwardes, H. H. Harrison, R. C. Griffin and F. D. Libby. The president and vice president are to be nominated for a one year term and the executive committeemen for a three year term. The Nominating Committee is expected to report to the Executive Committee prior to November 15, 1941.

A. H. Edwards Opens California Plant

Albert H. Edwards, vice president of the National Container Corporation, has just returned to his headquarters in Jacksonville, Fla., from an extended trip to Oakland, Cal., where he has just supervised the opening of a new box plant, under the name of Corrugated Kraft Containers, Inc., a wholly owned subsidiary of National Container Corporation. For the past nine years, he was general manager of the National Container Corporation converting plant in Long Island City, New York. His work at present, consists in assisting Samuel Kipnis, who is president of both Corporations.

George B. Beitzel Honored

George B. Beitzel, manager of sales of the Pennsylvania Salt Manufacturing Company in charge of many of the Company's products has been elected president of the Sales Managers' Association of Philadelphia. He will assume his new duties at the fall meeting of the association.

Mr. Beitzel is well known in industries which he has served having been connected with the Pennsylvania Salt Manufacturing Company for the past eleven years. His selection for this honor will be heartily approved by all of his friends.

WOOD PULP SITUATION

(Continued from page 9)

of consumption. This relationship between supply and consumption also resulted largely from economic considerations. Assuming that the consumption of purchased pulp during 1941 will be approximately equal to that of the last nine months of 1940, or in the neighborhood of 185,000 tons per month, the question presents itself as to how much pulp could be made available through United States and Canadian producers to meet it. In the tabulation shown below, estimated monthly consumption is compared with estimates of monthly quantities which may reasonably be expected to be available during 1941.

Monthly Consumption Put at 185,000 Tons

The estimated monthly consumption of 185,000 tons, is based on imports plus U. S. production for sale to domestic markets, plus net decrease in mill and dock stocks, April 1, 1940, to January 1, 1941.

The estimated potential quantities of wood pulp available per month for the domestic market during 1941 are: (1) Imports from Canada, 60,000 tons; (2) U. S. production for sale to domestic markets, 120,000 tons; (3) Imports from Europe 6,000 tons, making a total of 186,000 tons.

It should be noted that the tonnage given in the estimated potential quantities, represent those whose might be available under "all-out" operations. It is, of course, possible that 1941 monthly consumption will exceed that shown above. In such a case the excess of consumption over available supplies would again have to be met from inventories.

From the foregoing data the following conclusions may be drawn in respect to over-all pulp supplies, but may not apply in all respects to individual grades of pulp: (1) although dock and mill stocks have been drastically reduced, the rate of depletion in recent months has diminished and over-all stocks appear sufficient for most of 1941; and (2) available supplies of pulp for the domestic market during 1941 are expected to be in close balance with estimated consumption.

Despite these favorable aspects it is apparent that, while no actual scarcity of pulp is imminent, except in certain grades of unbleached pulp hitherto obtained largely from Scandinavia, every ton of idle pulp capacity is to be regretted, and no opportunity to build up and maintain reserves both at paper mills and at pulp mills should be neglected.

Buys American Sanitary Products Co.

HOLYOKE, Mass., March 24, 1941—Purchase of the business and equipment of the American Sanitary Products Company of Ware by the American Tissue Mills of Holyoke was announced by John F. Shea, industrial public relations manager for the city.

The Ware plant has been engaged in the manufacturing of the line of fine facial tissues. It will be moved at once to this city. Benjamin F. Perkins, president of the American Tissue Mills, announced that the new addition will be located in the Crescent street division of the concern and will employ about 30 people.

With this addition, the tissue mills plan to expand the production of fine facial tissues.

Boston Paper Men Hold Banquet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 24, 1941—Robert M. Stone was reelected president of the Boston Paper Trade Association at the Fifty-fifth Annual Meeting and Dinner held Wednesday evening, March 19, at the Algonquin Club. Other officers chosen were Irving N. Esleeck, first vice-president; John H. Brewer, second vice-president, treasurer, T. Charles Casey, and secretary, Kilby Osborn. Executive committee, Norman Harrower, Charles W. Fields, and W. Edwin Porter. Membership committee, W. N. Stetson, Jr., Royden Loring, Matthew O. Byrne, Willard H. Loud and Hubert W. Lockhart. Arbitration committee, George Wheelwright, Arthur L. Hobson, Jesse G. Swift, Harry C. Thayer, and Albert P. Carter. Auditor, William C. Ross. The nominating committee was composed of Colonel Charles S. Proctor, chairman, who presented the names, John E. A. Hussey, John W. Vivian, and R. S. Madden.

Tribute To New Members

Tribute was paid to the memory of those who had died during the year: Benjamin A. Franklin, Frank Gilman, W. W. Jenks, Herbert E. Raymond, and John B. Van Horn.

New Members Elected

The following were elected members: Frank H. Merrill, Andrews Paper Company; Joseph C. Hankey, Union Bag & Paper Corporation; John Shay, Central Paper Company; John J. Barry, Merrimack Paper Company; Herbert Simmonds, Fitchburg Paper Company; William Kenety, Fitchburg Paper Company, and Carl Fellows, Fitchburg Paper Company.

The speaker of the evening, Major George Fielding Eliot, radio news commentator, gave a highly interesting address on "The International Situation as of Today," which was followed by a question period.

Those in Attendance

Those listed were as follows:

D. P. Abercrombie, Jr., H. A. Allen, R. J. Allen, R. W. Allen, W. H. Anders, J. A. Andrew, J. A. Andrew, Jr., S. B. Andrew, Edwin Barney, H. C. Barr, J. J. Barry, S. W. Bartlett, P. M. Beach, R. M. Beckwith, A. F. Bell, G. W. Berglund, H. F. Bigelow, L. C. Bills, F. H. Blackman, J. F. Blackman, A. M. Boothby, H. J. Bourque, O. T. Bracken, J. H. Brewer, C. J. Brown, W. Bruckhauser, E. F. Burbank, H. V. Burgee, T. S. Burgin, J. F. Burke, F. T. Burkhardt, A. M. Burr, C. A. Burrell, M. O. Byrne, E. C. Calkin, John H. Calligan, J. C. Campbell, R. H. Campbell, A. T. Carter, Hubert Carter, J. R. Carter, 2nd, R. B. Case, T. Charles Casey, N. R. Catharin, G. S. Chace, H. E. Chase, R. A. Chase D. C. Cheever, Jr., J. G. Clark, N. S. Clark, Robert C. Clark, E. P. Clausmeyer, S. C. Collins, W. S. Collins, J. R. Crayon, E. A. Crowell, E. L. Cummings, T. K. Davis, R. L. Day, A. C. Denison, W. E. Doble, M. C. Dobrow, Chas. T. Dole, H. M. Donahue, Edward J. Dowd, C. T. Doyle, J. Dwire, J. Dwire, Jr., J. Dwyer.

G. F. Eliot, R. W. Ely, Irving N. Esleeck, C. A. Esty, A. F. Fay, Carl Fellows, C. W. Fields, Herbert Fowler, P. B. Fraser, Bruce Gardiner, D. Gibbon, M. S. Gibson, J. R. Halkyard, J. F. Halloran, H. C. Ham, J. C. Hankey, C. H. Harris, Norman Harrower, C. W. Harvey, F. D. Hatch, A. I. Hatfield, Edgar P. Hay, Fred Herbolzheimer, F. C. Herrick, H. Heuer, Jr., Harold Hinckley, A. L. Hobson, J. L. Hobson, W. B. Holmes, F. J. L. Hoss, A. M. Howe, Lee Hulett, Ralph Humes, H. A. Hurlbert, S. C. Hurlbert, J. P. Ingalls, J. D. Johnston, John Kelly, E. A. Kendler, William Kenety, E. E. Ketcham, B. M. Kimball, Carl Knowlton, B. M. Kimball, Carl Knowlton, F. B. Korbel, L. K. Larson, G. P. Lee, W. O. LeFavre, E. R. Leonhard, J. L. Levis, H. A. Lindenberg, E. H. Little, H. W. Lockhart, Royden Loring, W. H. Loud, E. R. Lyman, T. F. Lyons, E. W. MacDonald, M. L. Madden, R. S. Madden, Fred W. Main, F. H. Masselink, L. R. Mathers, D. H. Maynard, B. W. McGrath, W. J. McLellan, W. E. McNaught, Frank Merrill, Herman Miller, T. F. Mitchell, G. F. Morrison, George W. Masher, J. L. Munroe.

F. W. Nason, C. W. Nelson, Thacher Nelson, C. E. Newell, W. W. Newton, J. J. O'Brien, Robert O'Neil, Kilby Osborn, M. A. Park, N. J. Patterson, A. J. Pierce, L. M. Poore, W. Edwin Porter, W. M. Pratt, Charles S. Proctor, C. E. Rice, Grant Richardson, Philip Richardson, John E. Roach, R. P. Robinson, James Rose, W. C. Ross, William Ross, R. S. Rowlett, F. Henry Savage, G. Y. Sawyer, C. A. Shaw, John Shay, Herbert Simmonds, W. P. Simonds, E. T. Simpson, L. M. Simpson, G. T. Singleton, H. E. Slayton, W. S. Smock, J. D. Starr, Jr., L. T. Stevenson, Robert M. Stone, George Stuhr, E. H. Sussenguth, J. H. Sweet, R. P. Teele, C. W. Townsend, F. Bendel Tracy, H. H. Tucker, W. Gardner Very, Lloyd W. Vibberts, John Vivian, L. A. Walden, Eric Wallin, Howard Wallingford, K. H. Ways, R. H. Welsh, C. Fredoric Wellington, J. B. Whitney, F. H. Winter, E. L. Wood, H. R. Woodward and John D. Zink.

Delaware Valley TAPPI to Meet

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will hold its next regular meeting at the Engineers Club, Philadelphia, Pa., April 4, 8:00 P.M. Dinner will be served at 6:30 P.M.

The subject to be discussed is Fundamentals Behind Correct Lubrication by T. E. Dial of the Socony-Vacuum Oil Company, 26 Broadway, New York City. Mr. Dial has had many years of experience working with the pulp and paper industry and presented a paper at the 26th Annual Meeting of TAPPI about the lubrication problems on papermaking machines. A sound-color film will be shown by Mr. Dial in connection with his discussion.

Dinner reservations should be sent to J. D. Davis, Dill & Collins, Inc., Richmond and Tioga streets, Philadelphia, Pa., promptly.

B. C. Pulp Co. Earnings Up

The British Columbia Pulp and Paper Company, Ltd. for 1940 reports a net income of $349,889 compared with net loss in 1939 of $147,182.

Salesmen Discuss Publicity

The Salesmen's Association of the Paper Industry held a special luncheon meeting at the Commodore Hotel, New York on March 24 to discuss a public relations program for the paper industry to counteract the unfavorable publicity the industry is receiving from government agencies, congressional hearings and other sources.

E. W. Tinker, executive secretary of the American Paper and Pulp Association opened the discussion. He said that his experiences at Washington had revealed how little knowledge legislators possessed of the size and importance of the paper industry. It was also disclosed that Southern legislators sharply criticize the paper industry, and seemingly resent the establishment of mills in the South, although paper and pulp manufacturers are and continue to contribute much to the South and are expanding while the importance of the South's chief crop, cotton, has declined in economic importance.

The lumber industry, it was pointed out, has also been antagonistic to the paper industry. The lumbermen assert that the paper industry is devasting the nation's forests, although the paper industry consumes only about 5 per cent of the annual cut and the small lumber operators take about 54 per cent of it.

Discussion brought out a need for a constructive and well directed publicity program to inform, not only legislators, but the general public as well, of the accomplishments and contribution which the paper industry is making to the nation. The country should be "informed in order to promote a better understanding of the stability, good working conditions and the favorable wage level prevailing in the paper industry." Arthur H. Chamberlain, secretary of the National Paper Trade Association, extended the cooperation of his association in disseminating such information to the trade and to the general public.

The prevailing opinion definitely favored a central clearing house of publicity, such as the American Paper and Pulp Association. The salesmen's Association of the Paper Industry will, through its members, take the initial step to ascertain the reaction of all interested in the proposed publicity program. A well organized and comprehensive publicity program is so clearly needed in the best interests of the industry and the public, that it was generally agreed among those present that the efforts of the Salesmen's Association of the Paper Industry, and the National Paper Trade Association, cooperating with the American Paper and Pulp Association will be able to organize an efficient publicity service to "sell" the story of paper and the producers of paper to the public.

Moore & White Are Busy

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 24, 1941—The Moore & White Company, manufacturers of paper making machinery, report increased activity in their machinery and repair business, and among their commitments for early delivery are a 102" high speed Fourdrinier paper machine for the Morgan Division of United States Envelope Company at Lititz, Pa., which will be used for making light weight tissue, and for The Castanea Paper Company at their Lock Haven Mill, an 80" high speed M. & W. 2-drum rewinder.

West Va. Fire in Mill Yard

The fire at the Covington, Va. mill of the West Virginia Pulp and Paper Company briefly reported in the March 20 issue of the Paper Trade Journal, was outside of the plant. The fire was discovered at about 1 P.M. in stocks of pulp in the mill yard. Fanned by a high wind the blaze spread to rolls of liner board. The origin of the fire is undetermined at this date but may have been caused by sparks from a charcoal heater used by the men in the mill yard to warm themselves.

Several tons of pulp and rolls of liner board were piled in the yard but only one of the three piles of stock was damaged. The fire brigade at the plant was handicapped in fighting the blaze by the low temperature of about 8 degrees above zero and freezing of the water used to drown the fire.

The fire was entirely confined to the open mill yard and operations at the plant were not interrupted. Although the actual loss is not yet known, the extent of the damage is estimated at approximately $50,000.

Fatal heart attacks due to the excitement of the fire caused the deaths of two plant officials, J. E. Steely, kraft mill superintendent, and Walter L. Lunger, mill chemist.

C. H. Stallman Delivers Address

The Philadelphia Club of Printing House Craftsmen was addressed by C. H. Stallman, of the P. H. Glatfelter Company, paper manufacturers, at a dinner meeting held at the Poor Richard Club, Philadelphia, Pa., on March 13.

Mr. Stallman spoke on "Paper as Applied to the Printing Industry" and presented the Glatfelter sound film "A Short Course in Paper Making." This film was arranged and narrated by Mr. Stallman. It has been shown to more than 43,000 persons in various parts of the country during the last year.

At the conclusion of Mr. Stallman's address he was presented with a handsome silver plaque by the craftsmen which bore the following inscription: "Presented to Charles H. Stallman by the Philadelphia Club of Printing House Craftsmen in appreciation for sharing his knowledge, March 13, 1941."

Garrett-Buchanan To Add Space

[FROM OUR REGULAR CORRESPONDENT]

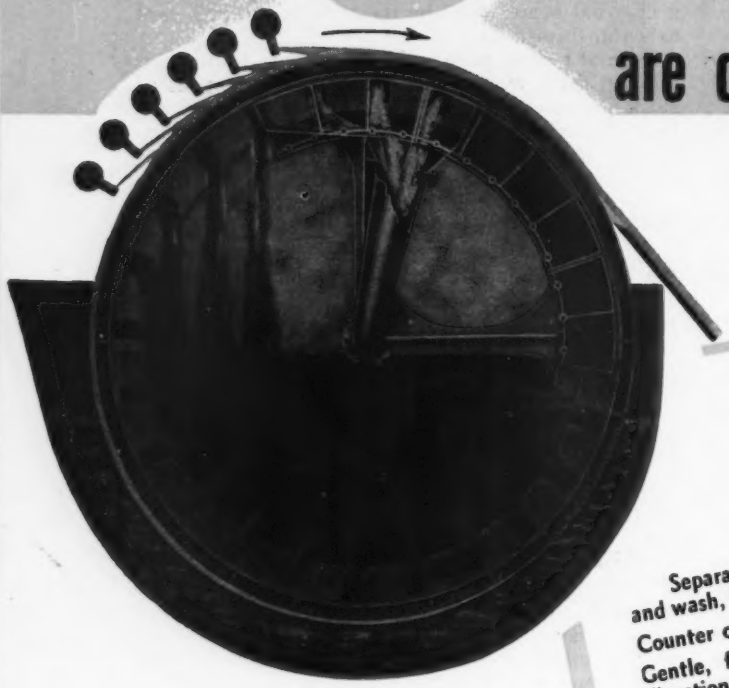
PHILADELPHIA, Pa., March 24, 1941—The Garrett-Buchanan Company, whose insignia on its stationery reads "Everything in Paper and Twine" has found it necessary, due to the general increase in business, to enlarge their offices at 12 to 20 South 6th street, Philadelphia. With a floor space covering almost a city square including warehouse, etc., a large portion of which is devoted to office space, it was deemed necessary to enlarge the office space by an additional 1500 square feet. It is equipped with the very latest in new lighting fixtures and an acoustical ceiling of the most modern type.

Appoints Washington Distributor

The Barton, Duer & Koch Paper Company, Inc., of Washington, D. C. has been appointed distributor of Escort Bond, the 50 per cent new rag bond recently introduced by the L. L. Brown Paper Company, Adams, Mass.

Why 3 Recent Purchases of

are of interest to all Mills



Features

Separation of high Baumé liquor and wash, thus reducing evaporator load.

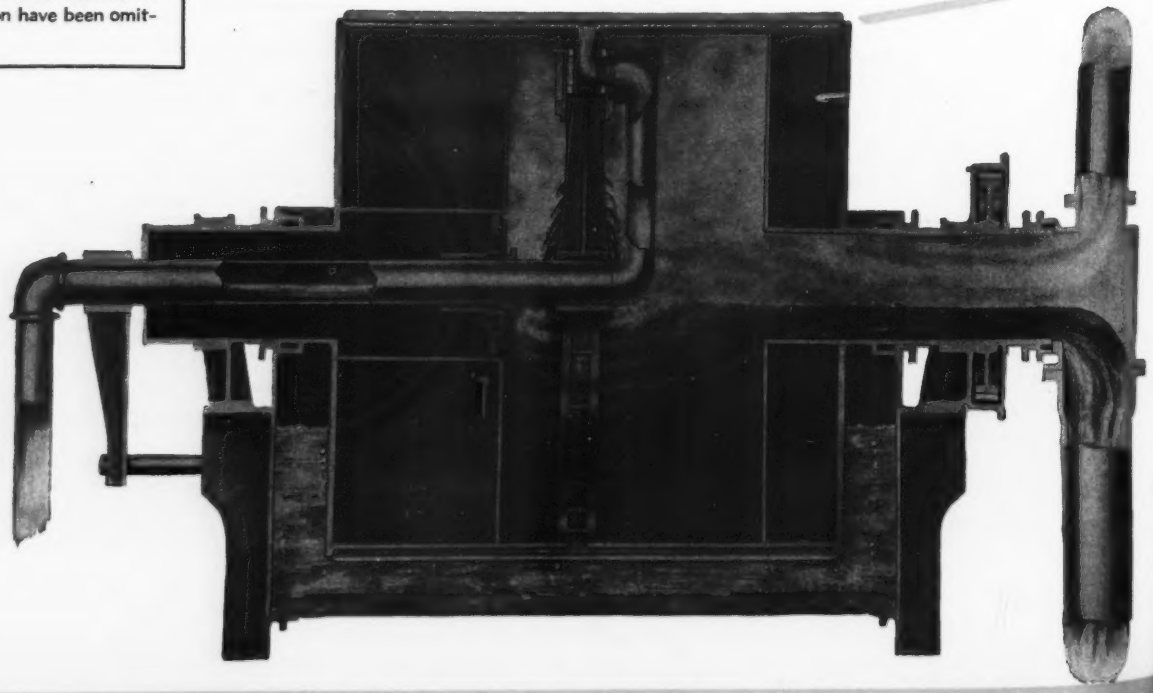
Counter current washing.

Gentle, fan-shaped wash from special directional, non-clogging Oliver nozzles.

Valve adjustment externally controlled.

Cylinder acts as a chamber in which air and liquid are separated quickly to prevent foaming.

NOTE: These drawings are intended only to help visualize the principle of operation. All minor details of construction have been omitted.



OLIVER RINGVALVE WASHERS

washing black liquor from Kraft or Soda Pulp

Late in February — **BUYER A,** located in Washington, placed an order for one 8′ x 12′ Ring Valve Kraft Washer.

Early in March — **BUYER B,** located in Alabama, placed an order for one 8′ x 12′ Oliver Ring Valve Kraft Washer.

A few days later — **BUYER C,** located in Virginia, placed an order for two 8′ x 12′ Oliver Ring Valve Kraft Washers.

What led to two of these three orders? Not just claims, but results—results being obtained with an Oliver Ring Valve Washer in a mill in North Carolina. These two buyers investigated and checked the results. Then came the orders. The third order was placed because of the excellence and superior operation of the Oliver Ring Valve Washer.

In the North Carolina mill, two operating features stand out in bold relief:

1 . . . Satisfactory separation of strong liquor from weak (counter current washing), giving in effect two-stage washing on one unit.

2 . . . Satisfactory solution of the foaming problem with this latest Oliver Brownstock Washing System.

What with high Baumé liquor to the evaporators, lower cost per ton, thorough washing . . . need anything more be said? The Oliver Ring Valve Brownstock Washer offers the best value for the money . . . the best buy for the mill.

P. S.—Just before this advertisement went to press we received another order for an Oliver Ring Valve Kraft Washer—an 8′x10′ unit.

OLIVER UNITED FILTERS INC.

NEW YORK, N. Y.
33 West 42nd St.

CHICAGO, Ill.
221 N. LaSalle St.

2900 Glascock St. OAKLAND, Calif.

Factories: Hazleton, Pa. — Oakland, Calif. — Orillia, Ont., Canada

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending March 26, 1941

	High	Low	Last
Armstrong Cork Co.	29¼	28	28¼
Celotex Corp.	9⅛	8⅞	9
Celotex Corp., pf.	68½	68	68
Certain-Teed Products Corp.	4	3⅞	3⅞
Certain-Teed Products Corp., pf.	29¼	28¼	29
Champion Paper & Fibre Co.	19	19	19
Champion Paper & Fibre Co., pf.	105½	104	105½
Congoleum-Nairn Co.	16⅝	16⅛	16⅜
Container Corp. of America	14	13⅝	14
Continental-Diamond Fibre Co.	7⅞	7⅞	7⅞
Crown-Zellerbach Co.	13⅛	12⅝	12⅝
Crown-Zellerbach Co., pf.	86½	85½	86½
Flintkote Co.	13⅝	13¼	13¼
Robert Gair	1⅞	1⅝	1¾
Robert Gair, pf.	17¼	16⅝	17¼
International Paper & Power	14	13⅛	13½
International Paper & Power, pf.	64½	63¼	64
Johns-Manville Corp.	61⅞	59	59¾
Johns-Manville Corp., pf.	127	124½	124½
Kimberly-Clark Corp.	31	29⅝	31
MacAndrews & Forbes	29¼	28	28
Masonite Corp.	25	24¾	24¾
Mead Corp.	8¼	8	8
Rayonier, Inc.	14⅜	13⅛	13⅜
Rayonier, Inc., pf.	25¾	25⅛	25⅛
Ruberoid Co.	17¾	17¼	17½
Scott Paper Co.	37½	37	37½
Scott Paper Co., pf.	108½	108	108½
Sutherland Paper Co.	21¼	21⅛	21⅛
Union Bag & Paper Corp.	11½	10¾	10⅞
United Paperboard Co.	2⅞	2⅞	2⅞
U. S. Gypsum Co.	64½	62½	62¾
U. S. Gypsum Co., pf.	174	174	174

New York Curb Exchange

High, Low and Last for Week Ending March 26, 1941

	High	Low	Last
Brown Co., pf.	17	15¾	17
Great Northern Paper	40¼	40	40¼
Hummel-Ross Fibre Corp.	5¾	5¾	5¾
National Container Corp.	12½	12	12½
St. Regis Paper Co.	2⅛	2	2⅛
St. Regis Paper Co., pf.	85	81½	84
Taggart Corp.	3	2¾	2¾

Howard Smith Profits Up

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 24, 1941—The financial statement of the Howard Smith Paper Mills Limited shows total income at $4,513,883, as compared with $3,121,470 in 1939, and net profit at $1,134,921, as compared with $1,447,117. The decreased profit is due to increased provision for depreciation, sharply increased taxes and the necessity of providing for an inventory reserve. Net profit was sufficient to cover the 6% preferred dividend more than 2½ times, and after payment of such dividend balance was equal to $2.23 per common share, against $3.10 for 1939. Earnings available for fixed charges provided a coverage of 12.24 times, after depreciation and depletion. After preferred dividends earned surplus was increased by $742,667 to $3,970,718.

Central Fibre Votes Dividend

The board of directors of the Central Fibre Products Company, Inc., at a meeting held March 21, declared the regular quarterly dividend of 37½ cents per share on the Preferred stock and a dividend of 50 cents per share on the Common stock, both payable April 1, 1941, to stockholders of record March 25, 1941.

Union Bag Nets $1.68

Alexander Calder, president of the Union Bag and Paper Corporation, has announced that for 1940 a revised annual net profit of $2,134,391, equal to $1.68 each on 1,272,437 capital shares, compared with $965,532, or 76 cents each on 1,262,729 shares, earned in 1939. In the preliminary report for 1940 the profit was estimated at $2,129,945.

Net sales were $22,081,033, an increase of $4,519,066, or 26 per cent, and shipments were 249,905 tons, a rise of 31,637 tons, or 14 per cent.

"Contrary to a somewhat general impression," Mr. Calder said, "the profit improvement is due only in a small degree to war conditions. For example, the price of grocers' bags, the company's largest single item, averaged in 1940 8 per cent below the average price in 1937. Prices of the company's other products show the same general relationship to 1937 pre-war levels."

Mr. Calder declared that had the Savannah mill not been operating and producing pulp for the Hudson Falls paper mills as well as its own paper and board machines the Northern mills would have had to shut down owing to rapidly diminishing stocks of foreign pulp, carrying the Northern bag factories with them. The acute situation in world affairs and the national defense program and mounting taxes, aside from the question of pulp, will bring many new problems in 1941, he added.

I. P. Negotiates Sale of Bonds

The International Paper Co., has nearly completed negotiations for the private sale of a mortgage bond to insurance companies, the proceeds of which will be used to refund the company's outstanding bank loans and the 4¼ per cent bonds of the Southern Kraft Corporation, a subsidiary.

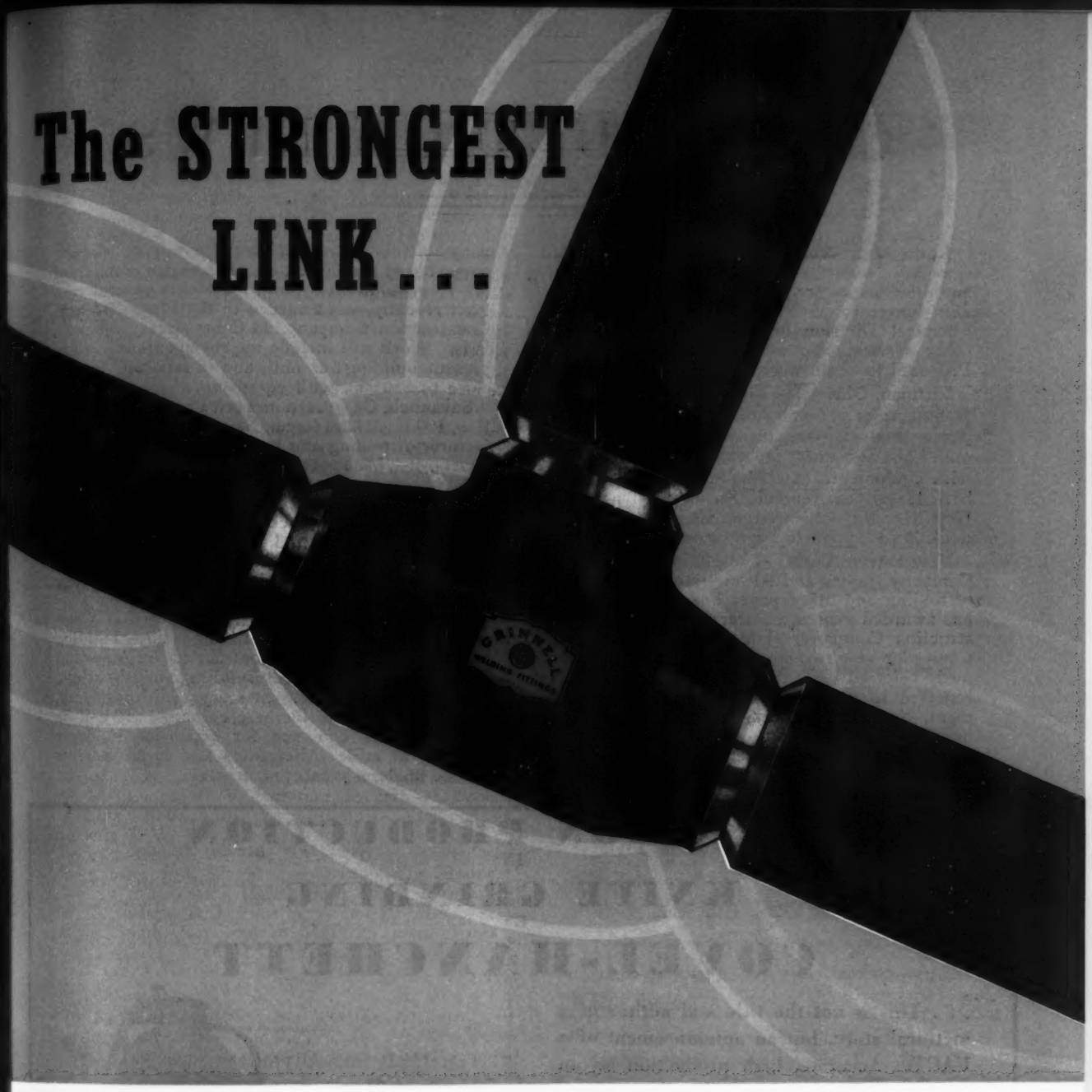
The total amount of the new issue will be something over $20,000,000. The company's bank loans were reduced last year until they now stand at between $9,000,000 and $10,000,000, while there are roughly $11,000,000 of the Southern Kraft 4¼s outstanding.

The interest rate on the new bonds will probably be a little under the average interest on the bank loans and the 4¼s. While the interest saving will be comparatively small, there are collateral advantages which make the transaction advantageous to the company.

The new bonds will be an obligation of the International Paper Company and as part of the transaction, the Southern Kraft Corporation will be merged with International Paper Co.

Munising Earns $1.16

The Munising Paper Company for 1940 reports a net income of $208,438, equal after preferred dividends to $1.16 each on 135,074 shares of common stock, contrasted with net loss in 1939 of $4,728; net sales, $2,418,177, against $2,168,587.



for Welded Piping Systems

JOINTS are never the "weak links" in welded piping systems when your pipe or tubing is correctly installed with Grinnell Welding Fittings. For, these special-quality stock fittings are identical with the pipe itself . . . *metal-matched* to correspond in strength and chemical and thermal characteristics with any pipe or tubing you select.

Because they are precision-engineered in all mechanical characteristics, too, Grinnell Welding Fittings speed-up and improve welding. Accurately beveled faces . . . full-strength outlets extruded by exclusive Grinnell process save laborious saddle-welding . . . only simple butt welds are required to produce joints of maximum strength.

Write for full details in data booklet "Grinnell Welding Fittings". Grinnell Company, Inc., Executive Offices, Providence, Rhode Island. Branches in principal cities.

WELDING FITTINGS BY **GRINNELL**

WHENEVER **PIPING** IS INVOLVED

CONSTRUCTION NEWS

Rothschild, Wis.—The Marathon Paper Mills Company, manufacturer of box board, wrapping and other paper products, has completed plans for new one-story addition to mill, to be used by Chemical Division for storage, distribution and other service. No estimate of cost announced. Proposed to begin work at early date.

Rittman, Ohio—The Ohio Box Board Company, manufacturer of box board, chip board and kindred paper products, has plans for new addition to mill, to be one-story, reported to cost over $60,000, with equipment. Award for structural steel has been let to the Republic Structural Iron Works, 1290 East Fifty-third street, Cleveland, Ohio, and work is scheduled to begin soon.

New Haven, Conn.—The National Folding Box Company, James and Alton streets, manufacturer of folding and other paper boxes and containers, has awarded general contract to the E. & F. Construction Company, 94 Wells street, Bridgeport, Conn., for new two-story addition to plant, previously referred to in these columns, 50 x 250 feet, reported to cost about $85,000, including equipment, and will proceed with superstructure at once. Fletcher-Thompson, Inc., 1337 Fairfield avenue, Bridgeport, is architect and engineer.

Menasha, Wis.—The John Strange Paper Company, manufacturer of kraft wrapping papers, paper board specialties, etc., has begun erection of one-story addition to mill, for which general contract recently was awarded to the Fluor Brothers Construction Company, 48 Otter street, Oshkosh, Wis. Work will include improvements in certain present buildings at mill, and is reported to cost close to $50,000, with equipment.

Savannah, Ga.—Certain-Teed Products Corporation, 100 East 42nd street, New York, N. Y., manufacturer of roofing and building papers, insulating papers, etc., has approved plans for new addition to branch plant at Savannah, consisting of a one-story structure, to be equipped for the manufacture of roofing felt. Machinery and equipment will be installed for an initial capacity of about 50 tons of material per day. Cost is reported over $150,000, with equipment. It is proposed to have new unit ready for service early in August.

Cloquet, Minn.—The Wood Conversion Company, manufacturer of insulating board, building board, etc., has awarded contract to the American Bridge Company, Wolvin Building, Duluth, Minn., for structural steel for one-story addition to mill, recently referred to in these columns. It will be 35 x 300 feet, equipped for expansion in dryer building at mill. Alterations and improvements will be made in present structure.

PRECISION PRODUCTION
IN
KNIFE GRINDING
BY
COVEL-HANCHETT

. . . This is not the title and author of a mythical story, but an announcement of a FACT. Accurate, high production on an OK Covel-Hanchett Knife Grinder pictured at the left. With either the cylinder or straight wheel type, there is no table overhang, no vibrations. Compactness, smooth reversing transmission, bevel grinding, wet grinding system, optional hydraulic table drive, automatic feeds adjustable as fine as 1/6 of .001"! These are precision tools, built for high production during years of superior service. Write for additional details today in our bulletin 34-11. There is no obligation.

COVEL-HANCHETT COMPANY **BIG RAPIDS, MICH.**

Pacific TAPPI Meets at Longview

The Pacific Section of the Technical Association of the Pulp and Paper Industry met at the Monticello Hotel, Longview, Wash., on Tuesday, March 4, 1941. Carl E. Braun of the Hawley Pulp and Paper Company presided as chairman. There were 105 present.

W. F. Holzer of the General Research Division of the Crown Zellerbach Corporation presented a paper on "The Study of Pulp by Chemical Swelling." Following this presentation the Eastman Kodak film "Highlights and Shadows" was shown. This illustrated their papermill operations and technical control system.

Those present included the following:—

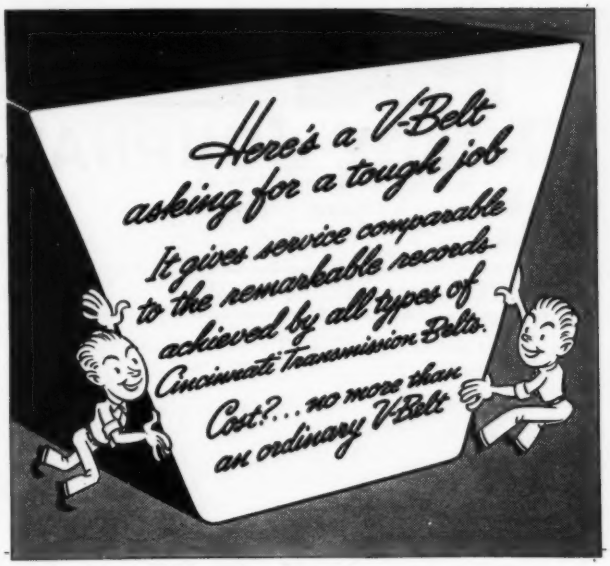
O. C. Abbott, C. E. Ackley, R. E. Astle, L. W. Bailey, Geo. H. Beisse, Homer H. Best, Louis H. Blackerby, Elliott Bowdoin, Carl E. Braun, J. G. Carson, G. R. Chambers, R. E. Chase, R. E. Chase, Jr., Wm. W. Clarke, Robert B. Colby, R. E. Dana, E. A. Denning, R. E. Drane, M. L. Edwards, A. E. Erickson, Lloyd R. Ewing, Carl Fahlstrom, Donald G. Felthous, O. E. Fox, Harry Fromong, G. H. Gallaway, Irving R. Gard, Wm. R. Gibson, Robert Goettling, J. E. Goodwillie, James Gould, C. H. Graham, D. C. Greeley, L. R. Guthrie, H. W. Hall, R. N. Hammond, John F. Hart, H. A. Hauff, W. H. Haverman, H. R. Heuer, Edw. J. Hinde, W. F. Holzer, A. H. Hooker, Jr., George K. Horton, Otto L. Hudrlik, J. W. Ingersol, J. M. Johnston, Lyal Jones, John W. Klein, Carl F. Leitz, Clark Lewis, R. P. Lungreen, A. C. McCorry, C. R. McCully, G. H. McGregor, Paul F. Miescke, T. E. Moffitt, T. H. Moran, Jack L. Murrow, Vern Mauerman, Hobart H. Newman, Robert Noble, Max R. Oberdorfer, Adolf Orup, W. M. Osborne, G. V. Palmrose, Frederic M. Pape, William Pittam, Carl Ramstad, E. D. Rich, Ross Roberts, J. W. Robinson, Oliver Ronken, A. J. Rosengarth, Rex H. Russell, J. E. Ryberg, Walter A. Salmonson, Jack V. Savage, Barton W. Sawyer, William F. Schakohl, Harlan Scott, Fred Shaneman, W. J. Shelton, D. L. Shirley, Anton P. Siebers, C. Wylie Smith, Ray Smythe, Paul J. Thiess, V. L. Tipka, R. M. True, G. R. Vernig, R. O. Vognild, J. B. Ward, Harold C. Wall, Samuel Weiss, Fred J. Welebar, Rex L. West, J. M. Wilcox, Zina A. Wise, and Edward P. Wood.

Paper Restrictions Less Stringent

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 26, 1941—A number of restrictions on the use of paper were recently relaxed by the Paper Controller, United Kingdom, but in all cases the concessions relate to paper made entirely from home-produced raw materials. The manufacture is now permitted of greeting cards, certain envelopes, showcards and advertising posters up to a prescribed size, labels and visiting cards. Regulations regarding the issuance of advertising circulars and catalogs are now less stringent. For some time the paper and printing trades have urged that less restricted trading should be allowed where products can be made from unimported materials.

A considerable concession has also been made to manufacturers of coated papers. A new order allows them to use without restriction all body papers and boards made wholly from home-produced materials. It is expected that coated papers will consequently be more readily obtainable.



Cincinnati V-Belts are the modern belts for transmitting power on Multi-V Belt drives. They provide a well balanced drive, run smoothly, quietly, and handle the power load most efficiently.

The uniform construction of Cincinnati V-Belts and the harmonious manner in which each part works with the others contributes definite advantages to cool running, longer life, and resistance to belt fatigue.

Large stocks permit prompt shipment for all requirements. Get full details and prices on Cincinnati Multi-V Belts today.

THE CINCINNATI RUBBER MANUFACTURING CO.
Cincinnati, Ohio

CINCINNATI
MULTI-V BELTS

PAPER TRADE JOURNAL

Thos Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 112 March 27, 1941 No. 13

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

American Pulp and Paper Mill Superintendents Association, Twenty-second Annual Convention, Poland Spring House, Poland Spring, Me., June 17-19.

EXCESS PROFITS TAX

When the billion-dollar excess profits tax and amortization bill was finally adopted last year it was severely criticized. It was opposed generally by the members of the House and Senate as a measure likely to prove damaging to business. The tax was planned to provide additional revenue of $500,000,000 in 1940 and $1,000,000,000 each year thereafter. The tax was also designed to prevent "a new crop of millionaires" arising from the national defense program; to provide a service insurance for mustered men and to encourage investment of private capital in new plant facilities for tax-free amortization.

In explaining the new excess profits tax regulations for affiliated companies, J. S. Seidman, C.P.A., of Seidman & Seidman, New York, very recently said in part: "For most affiliated companies, 1940 excess profits tax returns are still to be filed. That is because they are subject to special rules that the law delegates to the regulations of the Commissioner of Internal Revenue, and those regulations (numbering 110) have just been issued. Companies are affiliated when 95% of their stock is owned by the same parent company or by other members of the group. Affiliated companies can, at their option, file one consolidated return to cover them all, or each company can file its own return separately. This is permitted only for excess profits tax purposes. There is no such thing as a consolidated return for ordinary income tax purposes, except in the case of railroad companies."

In pointing out that one method only can be used, Mr. Seidman said that, "The regulations declare that affiliated groups can get started with consolidated returns for any year, filing separate returns until then, but once consolidated returns are filed, they must be filed forever after, unless there is a change in the regulations or in the make-up of the group. If consolidated returns are filed, all companies together get only one $5,000 exemption. If separate returns are filed, each company gets its own $5,000 exemption. However, in consolidated returns, losses of one company can be offset against profits of the others. That cannot be done when separate returns are filed. In addition to the $5,000, there is the exemption by reference to earnings in 1936-1939 or average capital investment in 1940, whichever yields the higher amount. In consolidated returns, the aggregate earnings and aggregate capital investment of the group are compared. Where separate returns are filed, the comparison is between the earnings and capital investment of each company. In figuring the aggregate capital investment, there is eliminated that part of the capital investment of any subsidiary that is applicable to its stock at the time acquired by the parent company or the others in the group."

Pointing out that inter-company transactions are not permitted when all companies are included in the one report, Mr. Seidman goes on to say that, "The effect of all inter-company transactions, both in 1936-1939 and 1940, must be eliminated in consolidated returns. Inventories must be refigured to exclude profits or losses they contain on sales from one company to another. So also, inter-company dividends or shifts of capital between companies are ignored. If separate returns are filed, each inter-company transaction is given its full tax effect just as if the transaction took place with strangers. In consolidated returns, all companies must conform to the accounting period of the parent company. For example, if the parent company makes its return on the basis of a year ended June 30, then all the subsidiaries must likewise be reported on a June 30 basis, even though if each subsidiary were on its own, its return would be for a different date. Where separate returns are filed, the accounting period of each company is preserved."

In conclusion, Mr. Seidman states that, "Though a consolidated return is filed, the income, deductions and capital investment of each company in the group must nevertheless be set out, to facilitate audit by the government. Furthermore, there must be filed by each subsidiary, in duplicate, a form authorizing the parent company to make the consolidated return. The government then deals with the parent company as the agent for all companies in the group, but each company is separately liable for the entire consolidated tax."

In discussing various aspects of the Excess Profits Tax Act of 1940, which was amended in some particulars on March 7, 1941, Godfrey B. Nelson, in a series of articles appearing in *The New York Times*, says in part: "A corporation entitled to receive credit for the unused excess profits credit only if it has filed a return pursuant to requirements of Section 742 (dealing with average base period net income of

acquiring corporations) is one the excess profits credit of which is allowed under Section 741, whereby the corporation is permitted to compute its excess profits credit under the income basis (Section 713) or the invested capital basis (Section 714), whichever amount results in the lesser tax."

Relative to requirements in the new section of the law, Mr. Nelson states that, "By the 1941 amendments to Section 740, ruling upon certain exchanges, acquiring corporations may acquire partnerships and sole partnerships as well as corporations. Under the new Section 742(g) a partnership or proprietorship is required to be dealt with as if it were a corporation under regulations to be prescribed by the Commissioner. For the purpose of the computations, in making the necessary adjustments for income taxes, partnerships or proprietorships, so regarded as corporations, will be considered as having distributed all their net income as dividends."

To Expand Pulp Plant at Tacoma

TACOMA, Wash., March 22, 1941—The St. Regis Paper company is engaged in a program of improvement of its kraft pulp plant on the Tacoma waterfront that will cost in excess of $600,000 this year, further evidence of the company's faith in Tacoma.

These improvements, for which the appropriations began in January, consist mainly of additions to and changes in the recovery plant designed to minimize chemical loss and balance the old part of the mill to the new part erected in 1936, according to Niles M. Anderson, general superintendent.

Installations of additional digesters and auxiliary equipment which will afford a longer cooking cycle in producing the high quality product manufactured at the plant are included among the improvements.

Ossian Anderson, manager, said he hopes this construction and improvement program will be completed by the end of October, although producing equipment is becoming more difficult.

The new construction work contract covering addition to the digester plant was awarded to the Industrial Engineers and Contractors of Tacoma.

The addition to the plant will afford further stable employment for operations which will be increased upon completion of the installation, according to Mr. Anderson.

Buys Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 26, 1941—During the week ended March 8, the Government purchased $83,962.10 worth of paper and allied products under the Walsh-Healey Act as follows: $13,200.00 worth of toilet tissue paper for Treasury Proc., D. C., from M. S. Ginn & Co., Washington, D. C.; $13,200.00 worth toilet tissue paper for Treasury Proc., D. C., from M. S. Ginn & Co., Washington, D. C.; $20,475.00 worth file folders for Navy, S&A, from Mathers-Lamm Paper Company, Washington, D. C.; $25,895.10 worth of ledger papers for Government Printing Office, D. C., from Stanford Paper Company, Washington, D. C.; and $11,192.00 worth of paper towels for Panama Canal, from Bogart Paper Company, Lansdowne, Pa.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
February 8	88.1	February 10	87.9
February 15	88.9	February 17	86.6
February 22	89.6	February 24	86.8
March 1	88.9	March 2	83.5
March 8	90.1	March 9	83.4
March 15 (Prelim.)	*89.9*	March 16	84.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	90.2	86.2	83.9	86.3	91.8	93.8	87.1
1941	84.8	*89.1*	...	...	...	...	...

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	87.2	83.2	88.0	86.9	83.2	87.5
1941	...	...	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date	68.0	76.8	90.2	67.0	80.6	87.6	*87.3*
Year Average	70.5	81.3	80.6	72.3	84.9	87.5	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	*81*	..	..	..	..	..	..	..	..	..	..	..

Week ending Feb. 8, 1941—79
Week ending Feb. 15, 1941—81
Week ending Feb. 22, 1941—80
Week ending Mar. 1, 1941—82
Week ending Mar. 8, 1941—80
Week ending Mar. 15, 1941—*82*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Prince George Pulp Project Revived

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., March 15, 1941—Efforts are now being launched to revive the proposal to erect a pulp mill at Prince George, B. C. At the present time all pulp and paper plants in British Columbia are operating to capacity and it is believed that with abundance of timber and with enormous potential hydro-electric power which could be developed at cheap cost, Prince George is ideally situated for an establishment of a big pulp and paper industry.

Possibilities of such development have been surveyed by a number of interests in the past. One of the difficulties has been lack of ocean shipping facilities, as Prince George is located in the northern interior of British Columbia and all manufactured products have to travel by an indirect method for transshipment at Prince Rupert or other deepsea ports. Despite this difficulty, however, the increasing demands for pulp have resulted in very serious consideration being given to possibilities of proceeding with the Prince George developments.

Subsidize Cotton In Writing Paper

WASHINGTON, D. C., March 26, 1941—The Agriculture Department announced today it would subsidize the use of 10,000 bales of low-grade cotton in the manufacture of high-quality writing paper.

Manufacturers desiring to participate in the program would receive 4½ cents a pound from farm surplus disposal funds on 75 per cent of the cotton used in making paper.

They Started Something!

THE DEVELOPMENT of the first power-operated machines for setting type marked one of the greatest advances in the art of printing since the days of Gutenberg. Foreshadowing the giant linotypes of today, the typesetting machine enormously simplified the task of preparing material for publication, and made possible great savings in printing time and cost. The benefits to the public were of major importance—faster dissemination of information, lowered costs that made the printed word available to greatly increased numbers of people. And the resulting increase in the demand for newspapers, magazines, and books opened wider markets for the manufacturers of the materials and equipment needed by the printing industry.

When EBG engineers first made Liquid Chlorine commercially available in America, their work also benefited both industry and the public. EBG Liquid Chlorine gave municipalities a new and effective means of safeguarding the public from the dangers of water-borne diseases—and today is constantly expanding its usefulness in the newer field of sewage sterilization for controlling and abating the pollution of rivers and harbors. And in the paper and textile industries, EBG Liquid Chlorine made possible new standards of bleaching efficiency and economy. First to produce Liquid Chlorine commercially, EBG engineers have the advantages of *extra* years of experience in its manufacture and servicing. This added experience works to *your* advantage when you specify EBG Liquid Chlorine.

The first cylinder of Liquid Chlorine made by EBG in 1909.

ELECTRO BLEACHING GAS COMPANY
Main Office: 60 East 42nd Street, New York, N.Y.
Plant: Niagara Falls, N.Y.

EBG Liquid Chlorine
FIRST IN THE COUNTRY

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Standards Committee Report for 1940*

By Roger C. Griffin, Chairman[1]

This report covers the period from February 1, 1940 to February 1, 1941.

New and Revised Standards

During the year 4 new tentative standards and 2 new suggested methods were approved and submitted to the Secretary for publication as follows:

T 9 m-40 Holocellulose in Wood[2].
T 447 m-40 Moisture Expansivity of Paper[3].
T 448 m-40 Water Vapor Permeability of Paper and Paperboard[4].
T 449 sm-40 Bacteriological Examination of Paper and Paperboard[5].
T 450 sm-40 Pentosans in Paper[6].
T 451 m-40 Rigidity, Stiffness and Softness of Paper and Paperboard[7].

Seven revised official standards were approved and submitted for publication:

T 400 m-40 Sampling Paper for Testing[8].
T 402 m-41 Conditioning Paper for Testing[9].
T 404 m-41 Tensile Breaking Strength of Paper and Paperboard.
T 405 m-40 Paraffin in Paper[10].
T 412 m-40 Moisture in Paper[11].
T 423 m-40 Folding Endurance of Paper[12].
M 400 p-40 Measuring, Sampling and Analyzing White Waters[13].

Two tentative standards were advanced to official standards in June by vote of the association, namely:

O 404 p-37 Sulphate Recovery Thermal Code.
T 428 m-39 Water-Soluble Acidity or Alkalinity of Paper.

At present the committee has under consideration proposed revisions of T 401 m-39, Fiber Composition of Paper, and T 440 m-37, Alkali-Staining Property of Paper, as well as three new tentative standards:

Colorimetric Determination of Titanium Dioxide.

Gravimetric Determination of Sodium by the Uranyl Zinc Acetate Method.

Analysis of Sodium Hydrosulphite.

Contents of Manual

In April the Secretary mailed to all members 32 new standards (including revised and corrected standards) and 4 new suggested methods for the manual of standards. This brought the contents of the manual up to 96 TAPPI Standards and 6 suggested methods. With the new standards already published during the year the material in the manual will consist of the following:

	Tentative	Official	Total
Standard Recommended Practices	1	9	10
Standard Specifications	..	1	1
Standard Testing Methods	16	74	90
Suggested Methods	..	..	7
			108

This is an increase of 6 over last year's report. By divisions these are distributed as follows:

Converting and Consuming			0
Engineering			5
Management			1
Operating			5
Raw Materials			0
Research and Development			0
Testing:	Fibrous	9	
	Pulp	17	
	Paper	49	
	Nonfibrous	22	97
			108

Conditioning Standard Changed

Probably the most drastic and far reaching change made during the year was in T 402 m, Conditioning Paper for Testing. The conditioning standard originally adopted by TAPPI was 65% relative humidity at 70 deg. F., with certain tolerances. This was made official in 1926. For some time, however, there has been considerable agitation to reduce the standard humidity to 50%. Strong arguments can be advanced on both sides of the question. Finally the question was referred to the American Paper and Pulp Association as a matter of policy and they prepared a questionnaire with the assistance of the Institute of Paper Chemistry and submitted it to the management of each member mill. The replies to the questionnaire indicated a preponderance in favor of 50% relative humidity and since the A.P.P.A. executive committee advised us that it had no objections to the change, the paper testing committee prepared and submitted a revision. The standards committee feels that, within reasonable limits, the actual humidity conditions under which paper is tested is of minor importance pro-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

[1] Member TAPPI, Director of Tests and Treasurer, Arthur D. Little, Inc., Cambridge, Mass.

[2] *Paper Trade J.* 110, no. 25, p. 23 (June 20, 1940).
[3] *Paper Trade J.* 110, no. 13:28 (March 28, 1940).
[4] *Paper Trade J.* 111, no. 6:25 (Aug. 8, 1940).
[5] *Paper Trade J.* 111, no. 15:27 (Oct. 10, 1940).
[6] *Paper Trade J.* 111, no. 18:28 (Oct. 31, 1940).
[7] *Paper Trade J.* 111, no. 22:123 (Nov. 28, 1940).
[8] *Paper Trade J.* 110, no. 25:23 (June 20, 1940.
[9] *Paper Trade J.* 112, no. 3:32 (Jan. 16, 1941).
[10] *Paper Trade J.* 110, no. 21:46 (May 23, 1940).
[11] *Paper Trade J.* 111, no. 8:25 (Aug. 22, 1940).
[12] *Paper Trade J.* 111, no. 7:34 (Aug. 15, 1940).
[13] *Paper Trade J.* 111, no. 26:34 (Dec. 26, 1940).

vided a definite standard can be agreed upon which will be generally adhered to. The revised standard of 50 ± 2% relative humidity at 23 ± 2 deg. C[14]. has been accepted and published and will be shortly submitted to vote of the TAPPI membership.

Alphabetical Index

With the increasing number of standards in the manual it is becoming increasingly difficult to locate a given standard, particularly when one does not know just what division or group to look under. The present index is merely a table of contents arranged by code numbers. The standards committee has prepared an alphabetical index. It is recommended that this be printed for the manual under the title "Alphabetical Index of TAPPI Standards and Suggested Methods" and that the title of the present index be changed to "Numerical Index of TAPPI Standards and Suggested Methods." It is understood that arrangements are being made to do this. Both indexes should be revised and reprinted yearly and mailed to the members with new and revised methods adopted during the year.

Overlapping Committees

It is recognized that there is a potential overlapping of the fields of several of our committees, particularly with the recent formation of some new committees. If, for example, the Water Committee should wish to revise or expand the method for analysis of water, it would be overlapping the scope of the Nonfibrous Materials Testing Committee. The Chemical Methods Coordination Committee by the actual definition of its scope overlaps the fields of at least three other committees, fibrous materials testing, pulp testing and paper testing. The same is also true of the Microscopical Analysis Committee.

The formation of these committees is an excellent forward step in the TAPPI committee setup but it creates somewhat of a problem of policy. This is of direct concern to the Standards Committee, whose functions are defined as follows: "To establish regulations governing standards; to review and edit existing and proposed standards; and to coordinate standardization activities within the association and with other organizations." That certain regulations are necessary and desirable must be self evident. They are particularly necessary in an organization where the work is voluntary and the committee members and chairmen are changing from time to time. It is intended to keep the regulations to a minimum which will provide a uniform system, promote coordination and cooperation and avoid friction.

With the foregoing in mind the Committee proposes to change article 3 of the Regulations Governing Standards and Suggested Methods in the Year Book to read as follows:

"After a proposed standard has the approval of three quarters of the active members of the committee in which it originates, it shall be submitted for approval to the standards committee—provided that, if the proposed standard concerns a subject or a material within the scope of another committee or other committees, the approval of three fourths of the active members of such other committee or committees shall also be obtained before submission. The standards committee shall have the decision, for this purpose, as to the scope of different committees. After receiving approval by the standards committee, the proposed standard shall be presented to the secretary of the association as a tentative standard."

This will also involve adding the words "or committees" at the end of the fourth line in article 4, making it read "originating committee or committees."

Old Standards

There have been some inquiries as to whether certain of our standards are up to date. Each standard bears in the code number the last two digits of the year in which it was adopted or of the year of the last revision or correction. Five standards now bear the date 1933, and 15 bear the date 1934. When one is using a standard dated 7 or 8 years ago, it is natural to wonder if it is the latest edition. Under present conditions this situation will become more acute with passing years and it seems advisable to provide some means for keeping our standards up to date. The committee therefore recommends that in the Regulations Governing Standards and Suggested Methods the present article 9 be renumbered 10, and that a new article 9 be inserted reading:

"9. In order to keep standards up to date, as soon as possible after the annual meeting the secretary shall send the chairman of each committee a list of the standards under the jurisdiction of his committee which have stood for six years or more without revision. Such standards shall be considered by the respective committees and within the year the chairman of each committee shall notify the standards committee whether each of such standards is up to date or whether his committee proposes to revise it. Those standards which the originating committee considers up to date shall be designated with the word "Reaffirmed" followed by the date of reaffirmation. A note to that effect shall be published and the last two digits of the code designation of the standard shall be changed to the last two figures of the year of its reaffirmation."

[14] This is equivalent to 73 ± 3.5 deg. F.

Patents Committee Report for 1940*

By Charles W. Rivise[1], Chairman, and Herman W. Richter[2], Vice Chairman

Sesquicentennial Celebration of the American Patent System

The outstanding event of the year 1940 was the celebration of the Sesquicentennial of the American Patent System. Starting in February with a number of banquets and special exercises in principal cities throughout the United States in honor of Modern Pioneers, the celebration culminated on April 10 with Inventors and Patents Day. In all 572 inventors were picked as Modern Pioneers and were honored during the celebration. Notable in the series of events was the Parade of Inventions, an impressive exhibition of new and old patented inventions. A banquet was held on the night of April 10 in Washington, at which industrialists, governmental officials, and judges joined in honoring the inventor. The principal addresses as well as the musical and dramatic features of the program were broadcast by radio.

Changes in Patent Laws and Procedure

The following changes in the patent laws were

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

[1] Member TAPPI, Patent Attorney, Caesar & Rivise, 1321 Arch St., Philadelphia, Pa.

[2] Member TAPPI, Research Director, Geo. O. Jenkins Co., Bridgewater, Mass.

made during the last fiscal year of the government:—

1. *Effective August 5, 1940,* the period within which an inventor may make public use or sale of the device of his invention before filing his patent application was reduced from two years to *one year.* The inventor must file his application not later than *one year* after the invention is described in a printed publication.

2. *Effective October 5, 1939,* the right of appeal of the losing party in a patent interference to the Board of Appeals was abolished. In all patent interferences declared after that date, the hearing will be held before a Board of Interference Examiners consisting of three examiners, and the losing party will have the right to appeal directly to a court, instead of to the Board of Appeals and then to the court as under the present practice.

3. *Effective August 5, 1940,* applicants for patent wishing to contest the question of priority of invention with an issued patent will have *only one year* instead of two years to copy the claims of the issued patent.

4. *Effective August 7, 1939,* the Commissioner of Patents is authorized to require an applicant for patent to respond to an Office Action within six months *or such shorter time, not less than thirty days, or any extension thereof, as may be fixed by the commissioner in writing to the applicant.*

5. *Effective August 9, 1939,* the right of an applicant for patent to forfeit and then to renew an allowed application was abolished. Instead an applicant must pay the final fee within six months after the application has been allowed. However, the commissioner is authorized to accept the final fee in his discretion, if it is tendered within one year after the six months period for payment has elapsed. The delayed fee must be accompanied by a petition and an additional fee of $10.

The foregoing statutory changes were made on the recommendation of the Commissioner of Patents and the Temporary National Economic Committee. Two additional proposed changes failed of enactment. One of the unsuccessful proposals was the provision for a single court of patent appeals, and the other was an act limiting the term of a patent to not more than twenty years from the filing date.

Patents and National Defense

During the last war (1917) Congress passed an act (35 U.S.C. 42) which provided that whenever during war time the publication of an invention might be detrimental to the public safety or defense or might assist the enemy or endanger the successful prosecution of the war, the commissioner may order that the invention be kept secret and withhold the patent until the termination of the war.

On July 1, 1940 the President of the United States approved a law which gives the commissioner the power until July 1, 1942 to order an invention kept secret *whenever the national interest requires.* In other words, the Act of 1917 has been extended to cover times of peace as well as times of war. It is to be noted that an inventor who violates the commissioner's order of secrecy forfeits his patent rights. An inventor who complies with the commissioner's order of secrecy is entitled to demand compensation if his invention is used by the government, provided a patent is finally granted.

The following Federal organizations are charged with responsibility in connection with inventions relating to national defense:—

(1) Patent Office Defense Committee, Patent Office, Washington, D. C. This committee acts in an advisory capacity to the commissioner in ascertaining which pending patent applications should be ordered held in secrecy.

(2) Army and Navy Patent Advisory Board. This board cooperates with the Patent Office Defense Committee in ascertaining which pending patent applications should be kept in secrecy.

(3) National Inventors Council, Room 7422, Commerce Building, Washington, D. C. The council acts as a clearing house for inventions relating to national defense which are sent in by members of the public. Persons desiring to submit inventions to the government should send them directly to the council. The council assists the War and Navy Department and other defense agencies in solving the inventive problems of national defense.

(4) National Defense Research Committee, 1530 P. St., N.W., Washington, D. C. This committee directs research projects pertaining to national defense except those relating to problems of flight.

(5) National Advisory Committee for Aeronautics (N. A. C. A.) 3841 Navy Bldg., Washington, D. C. This committee supervises and directs the scientific study of the problems of flight, with a view to their practical solution, and directs and conducts research and experiments in aeronautics.

Justice Department's Antitrust Campaign

During the past year the Department of Justice greatly extended its antitrust activities and filed several suits based upon alleged misuse of patent rights. Without entering into a discussion of the merits of any of the suits, it may be stated that it is indeed unfortunate that greatly exaggerated and misleading stories appeared in the daily press and popular magazines. Bausch & Lomb Optical Company of Rochester, New York, a sustaining member of TAPPI, whose integrity and patriotism are unquestionable, was falsely represented in scare headlines as being Nazi-controlled and as being engaged in thwarting and throttling National Defense.

Patent Litigation in the Pulp and Paper Industry

The following decisions of particular interest to the pulp and paper industry were handed down since August 1938:—

Sprout, Waldron & Co. v. Bauer Bros. Co., 41 U. S. Pat. Q. 86 (S. D. Ohio, 1938).

Manson patent 1,399,976 for a method of making a fiber product from saw mill waste was held valid.

Crowder v. Armour, 42 U. S. Pat. Q. 234 (C. C. A. 7, 1939).

Crowder patents 1,820,867 and 1,963,778 for transfer sheets to be used by artists and engravers, were held valid and infringed.

Simplex Box Corp. v. Rosenthal Paper Co., 42 U. S. Pat. Q. 565 (C. C. A. 8, 1939), and *Simplex Box Corp. v. Boxmakers Inc.,* 48 U. S. Pat. Q. 1 (C. C. A. 7, 1940), holding Gross patents 1,690,109; 1,758,510 and 1,940,213 for collapsible paper boxes invalid.

Sutherland Paper Co. v. Auburn Carton Corp., 46 U. S. Pat. Q. 19 (N. D. Ill. 1940), which held invalid Rutledge patent 1,906,337 for a cellular carton.

Babcock & Wilcox Co. v. North Carolina Pulp Co., 47 U. S. Pat. Q. 154 (D. Del. 1940), holding valid Wagner patents 1,771,829 and 2,050,400 covering an apparatus and a method for recovering the chemicals and heat values from black liquor.

McElrath v. Industrial Rayon Corp., 47 U. S. Pat. Q. 172 (W. D. Va. 1940), which held McElrath patent 1,751,165 for machine for continuously bleaching hanks of rayon invalid for lack of invention.

Van Wormer v. The Champion Paper & Fibre Co., 48 U. S. Pat. Q. 246 (S. D. Ohio, 1941), which held Van Wormer patent 1,947,748 for a paper cleaning machine not infringed.

Process Factors in the Commercial Beating of Wood Pulp*

By Howard R. Gaetz[1]

Abstract

The development of modern beating processes is discussed. Some of the recent processes of stock preparation are discussed from the points of view of process design, beating efficiency and performance, and resulting economies.

A new factor called stock velocity ratio is defined as a jordan process design factor of major importance; and jordan-beating efficiency and performance are related to it.

Requirements of the beating process are listed.

A technical definition of beating might read "the process of bringing about those physical, chemical, and/or physico-chemical changes in the individually suspended fibers which make them suitable for papermaking." A practical definition of beating might read "the process of using our power, men, and equipment in such a way as to produce a sheet which will meet the most rigid yet obscure specifications, on a complicated and cantankerous assembly of paper machine equipment, at a profit in the face of the stiffest kind of competition."

Living up to either definition is no mean task. It is my opinion that no major industry today is asked to comply to a more confused set of specifications, processing such widely varying raw materials, and using such delicately sensitive equipment, than is the manufacturer of folding boxboard.

Development of the Conventional Process

The conventional system of beaters followed by jordan refining dates back to the inventions in the middle of the 18th century of the hollander beater, and in 1856 and 1858 of the disk and jordan refiners. Since these inventions, no widely successful equipment has been developed to perform the functions which departs from the basic principles of these three machines.

For the period of time between the appearance of the beater and the two types of refiners, the beating process consisted of accomplishing all the functions, breaking, shortening, fibrillation, and hydration in the one piece of equipment. This was 1-stage stock preparation in its simplest form. Its great flaw in process design was that breaking time overlapped beating time in the processing cycle. Greater capacity demands were met by duplication of equipment. The premise probably behind the invention of the jordan was that by greatly increasing the working surfaces of a beater, by entirely surrounding the roll with bedplate, a beating machine would result which would render the hollander beater obsolete. The resulting controversy has continued sporadically for 80 years.

Whatever were the natures and results of early experiments with the jordan, this machine was injected into the process in a position subsequent to the beater, introducing 2-stage beating which was a compromise in two ways. As regards papermaking it was a compromise insofar as it was known that the beater made better paper than the jordan as then used, but for accomplishing freeness drop for purely formational purposes, the jordan was more drastic in its action and was therefore used to supplement the limited capacity of the beater purely for mechanical expediency. From the point of view of capital outlay and floor-space requirements, the jordan was also a compromise, and for the same reasons. Used in this way, it is still a compromise today. Figure 1 (top) shows this process as it is widely used today.

Defects of this System

The great failing of this process is its inability to produce uniform stock characteristics. The need for uniformity of beaten stock characteristics, acute for many years, has increased rapidly in late years, due to rapidly widening use of paper packaging, and the consequent development in the graphic arts field.

The conventional system of stock preparation, as designed in virtually all mills making printing grades of paper board, is unable to produce a commercial degree of uniformity under present day trade conditions. The reason can be briefly stated. This process is essentially 2-stage beating, in which varying degrees of all three main beating functions are performed in each stage, under conditions usually lacking in proper capacity and always lacking in necessary control.

Let us follow a typical operation of this system preparing patent coated top-liner. A usual top-liner layout consists of two beaters, one dump chest, pump, headbox and overflow layout, one jordan, and the machine chest, as shown in Fig. 1 (top). Assume that the machine is running out the machine chest on an order of bleached manila. The system has been washed out up to the machine chest, one beater of the new stock has been dumped and is being refurnished, the other is beating, and the jordan is not yet on the line. The first order in the series for white patent coated is for 15 tons, and the machine makes 4 tons per hour.

Now the machine chest is ready for the new stock. The jordan is started, and is supplied at a rate about equal to the machine demand; stock from the jordan is running to the machine chest, and the machine makes "change-board" for 15 to 30 minutes. Then the change is completed and the machine goes on the order. The jordan feed is now increased to probably 1.5 times the machine demand, and the plug is set up. The purpose is to bring up the

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

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machine chest. This is change number 1 in operating conditions. The beaten stock characteristics change with it. Printing quality and other quality factors vary with it.

These new conditions are maintained for roughly 2 hours, at which time there are 2000 pounds of beaten stock in the machine chest, and the machine has made half the order. The jordan feed is now reduced to equal the machine demand, and the plug is backed off slightly. Again two variables in procedure are changed, and a new set of stock characteristics flows to the machine chest. The stock going to the machine will now vary progressively for a period of time depending upon the ratio of chest feed and discharge to chest capacity and upon the thoroughness of mixing by the chest agitator. Two hours of this and our order is made with a 10% overrun, and we have still not reached equilibrium conditions in the machine chest.

Then comes a lull of a few days or weeks (in which we congratulate ourselves upon the delivery of a beautiful order of paperboard), before the box shop, if they have not long since tired of complaining, render us a complaint that the printing varied all over the lot. We just cannot understand it; we used the same furnish and the same procedure throughout. It must have been the water!

Even upon a long run, uniformity of stock characteristics yielded by this process is jeopardized by these facts: (1) No two beaters beat just alike; no two batches from the same beater are dropped just alike. (2) The second (or jordan refining) stage of this process is tied up to the machine, so that changes in speed or machine demand make it necessary to vary the jordan feed. At the feed rates found in this procedure, the jordan is operating under conditions of maximum sensitivity to feed variations and plug setting. (3) At the range of feeds encountered in this process, the jordan is operating under conditions of maximum sensitivity to small variations in stock consistency.

Various modifications of this process exist. Two machine chests for liner stock represent some improvement in both process and operating economy. Feeding slushed stock from a beater or pulper to the beaters increases capacity. Placing a "tickler" jordan between machine headbox and screens further aggravates the control factor. High-speed and multi-bedplate beaters increase capacity; but the process is still a compromise.

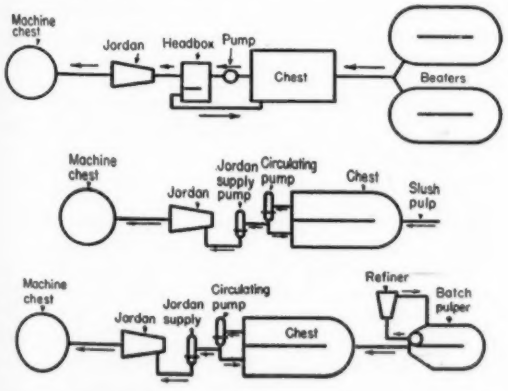

FIG. 1

Top—Conventional Process. Center—Single Pass Jordan-Beating Process, Continuously Furnished. Bottom—Single Pass Jordan-Beating Process, Batch Furnished.

Single-Pass Jordan-Beating Process

Fig. 1 (center) shows a system adopted to some extent for sulphate wrapping, bag, and liner papers. It can be defined as a 1-stage full-continuous single-pass jordan-beating process. Slushed stock, either from the adjoining pulp mill, or from a continuous breaker system is fed continuously to a dump chest, withdrawn by pump to the jordans, either direct or by way of a headbox, through the jordans, sometimes connected in series and sometimes in parallel, and discharged to the machine chest. The advantages of this process are small floor space requirements, low labor cost per ton, and 1-stage continuous beating.

The disadvantages are, that here again the rate of stock flow through the jordans is governed by machine demand, limiting control of beating to the one variable, jordan load. Under the usual conditions, jordans used in this way do not accomplish sufficient wet-beating or hydration to constitute good beating practice. Freeness drop is largely due to shortening of the stock. Capital and power costs per ton are high.

One interesting modification of this process has found some use in paperboard mills shown in (Fig. 1, bottom). This precedes the dump chest with a batch pulper to which is attached a recirculating refiner. Operation of this system is batch from pulper to chest, and continuous through the jordans to the machine chest. In this process the performance of the refiner, in the degree of hydration it accomplishes, is of much importance. My experience with this is limited to two installations, and in each case the refiner drew 150 hp. and did little that could be found except to assist somewhat the breaking action of the pulper. In any case, considered process-wise, this flowsheet exhibits the same ills of any 2-stage beating process; ills arising from lack of specific control, and from what has been found to be improper jordan usage.

Recirculated Jordan-Beating

Studies, under operating conditions, of the newer methods of recirculated, or multipass jordan-beating, show this field to be the most promising development in paper stock preparation that has come forward to date. They go at least part of the way toward explaining the paradox, of why the jordan, with its greatly increased bar-contact area, has never, until recently, yielded anything like a proportionately higher beating capacity than the roll-and-bedplate beater. They bring out into clear relief the fallacy of ever expecting the conventional system to yield uniform stock. They exhibit important economies, specific control, and point the way to greatly simplified processes which give an entirely new meaning to jordan usage.

Many processes incorporate to some degree the principle of recirculated jordan-beating, but few mills are so designed as to depend entirely on it for their beating. The effect upon production rates of recent process modifications in 8 paperboard mills is shown in Table I. These mills depend entirely upon recirculated jordaning for their beating.

In these, with the exception of that designated Machine H, the reasons for the increased tonnage were the same. In each case the paper machines had over a period of years been so modified as to increase running speeds, drying capacities, and forming capacities,

with no disproportionate increases in beating capacities, until the machines had "run away" from the beater rooms. Added to that, the increasing necessity to accept smaller and smaller orders had placed further capacity and flexibility demands upon beater rooms, so that the main bottlenecks were low beating capacity and faulty process. Besides penalizing production, this situation also penalizes quality. In most cases the machines were actually producing more paperboard than the reasonable capacity of the beater room to produce good stock, and what little control existed was used to satisfy paper machine factors, leaving none whatever for the prime requisite of sheet quality.

In the case of Machine H, this was a new installation in which the paper machine was designed for 180 tons per day, representing future rather than present requirements, while the beater room was designed to use the process shown in Fig. 1 (bottom) with a designed capacity of 65 tons, the expected current requirement. It was intended to increase the beating capacity to follow a growing demand, but for various reasons the demand increased so suddenly as to make it necessary to increase beating capacity more quickly than new equipment could be bought and installed. Recirculated jordan-beating was adopted, with the production result stated, and with kraft and hard white stocks running 100 to 200 cc. wetter than previously, from the same equipment.

Table I shows the effect of this type of beating upon machine production in cases where the production and quality bottle-necks are beating capacity and process. These production benefits represent the direct money benefit accruing from the changes made. Less direct but equally important monetary benefit was derived from the paperboard quality resulting.

Some attempt at definition of "paperboard quality" should be made at this point. A satisfactory delivery of paperboard is one which performs as follows: (1) one which accepts uniformly well, throughout the sheet and throughout the order, the cutting and creasing impressions of a good make-ready, even near the end of the normal life of that make-ready. (2) One which exhibits, throughout sheet and order, a uniformly satisfactory degree of resistance to and acceptance of ink penetration; "satisfactory" meaning conforming to the ink most suitable to the job requirements, and to the ink yardage required to meet the estimate on which the job was sold. (3) One which accepts uniformly well, throughout the sheet and order, the proper application of adhesive, and makes a good seal at the pressures and pressing time designed into the carton gluers and the packagers' filling and sealing machines. (4) One which presents, in its life cycle between packagers' operations, through distributors' and consumers' handling, good performance in all these things, plus satisfactory appearance and strength characteristics as determined by the requirements of the packager whose product it contains. (5) More broadly, one which conforms to all the measurable factors of sheet sizes, strengths of sheet and of bonds between vat laminations, basis weights, calipers, colors, sizing, and so forth, most of which are fairly well standardized in trade practice and to a degree controllable.

TABLE I.—EFFECT OF PROCESS MODIFICATIONS ON PRODUCTION RATES

Machine	Grades	Nature of Modifications	Average Production Before tons/day	Average Production After tons/day	Increase %
A	All folding boxboard	Recirculated beating and control adopted; suction drum press in extractor position; line-shaft speed increased..	100	140	40
B	All folding boxboard	Recirculated beating and control; new drier drainage system installed	90	120	33
C	Jute, chip and .009 corrugating	Recirculated beating and control; wet-end rebuilt; new machine screen assembly.....	90	110	22
D	All folding grades, jute and chip	Recirculated beating and control.....	100	125	25
E	All folding grades	Recirculated beating and control.....	90	110	22
F	All folding grades	Recirculated beating and control.....	100	125	25
G	Folding grades and jute liner	Recirculated beating and control.....	90	115	28
H	All folding grades, jute and chip	Recirculated beating and control	80	110	26

Conformance to these requisites is not so utopian as it sounds. What complicates complaint analysis is that in the usual course of complaint procedure, a complaint originating in some one of the first 4 requirements, whose limits are *not* defined in trade practice, is interpreted and lodged as being a failure in one or several of the requirements in item 5 which are defined in trade practice.

In all of these quality requirements and in the operations following the process modifications in the 8 mills in Table I, variations were so narrowed down as to make possible new and needed control mechanisms, and establish practical relationships between mill practice and box-shop requirements. There can be no other reason for this than controlled beating of adequate capacity.

The technical data that have been gathered pertaining to jordan-beating by the recirculation process leave many gaps if considered from the point of view of pure research. As a technical service to commercial operation, these data measure various values only under successful commercial operating conditions, and leave no room for reservations as to practical application. They establish a few of the more pertinent relationships between operating variables and the resulting manufacturing efficiency.

Circulating Rate

The commercial use of this method of jordaning showed beating efficiencies which could not be explained by dwell time of a unit volume of stock in the bar contact regions of the jordan. The only possible explanation was that the significant factor was rate of stock flow through the jordan. It was necessary to have a "yard-stick," since mere stock velocity parallel to the bars would not take into consideration the wide variety of tackle and plug speeds which exists.

Stock in a jordan disregarding the turbulence will follow a general path which can be resolved into two components, (1) the path parallel to the long dimension of the channels, and (2) the path perpendicular to this dimension and parallel to the channel bottoms. Linear velocities of both components will vary between the small and large end of the jordan. The measuring stick established was the calculated ratio of the linear velocity component parallel to the long dimension, to the linear velocity component perpendicular to this dimension, both at the center or mean diameter of the jordan. This is most easily designated as "stock velocity ratios," abbreviated S.V.R.

and expressed as "ratio V_1/V_p, where V_1 is the calculated longitudinal velocity corresponding to the gallonage throughput, and V_p is the calculated peripheral velocity imparted to the stock by the rotational speed of the plug, both at the mean jordan diameter.

This stock velocity ratio is raised, in any given jordan, by increasing the gallonage put through the jordan. It gives a basis for comparison between different jordans.

Effect of Stock Velocity Ratio

Rate of Freeness Drop

In Fig. 2, the ratio V_1/V_p is related to the rate of freeness drop per unit of power input, the units for which are cubic centimeters Canadian freeness reduction per 100 hp. hours per ton airdry stock. The points shown on this curve are each an average of several test runs made on solid sulphate furnish, some made on the same jordan and some on different jordans. Points located by tests on different jordans were found to lie within the range of variation of tests made on the same jordans.

The shape of the solid portion of the curve is thus defined by careful tests. The shape of the dotted portion of the curve follows that indicated by compilations of strictly operating data and is therefore indicated but not accurately defined.

In considering these data, dwell time of a unit volume of stock in the bar contact regions of the jordan can be considered as constant for all points, since the points located ali represent conditions at the end of the beating cycle, and while the dwell time of a stock during each pass through the jordan when the S.V.R. is, say 0.1, three times as long as when the S.V.R. is 0.3; in the latter case the stock had three times as many passes through the jordan as in the former.

The lapsed time between successive applications of jordan work on any unit volume of stock in these tests varied inversely as the S.V.R. This was not explored, and is an important variable in process design. This curve shows that the beating capacity of a jordan as measured by rate of freeness drop can be, and has been virtually doubled by the use of recirculated jordaning and controlled throughput.

Beaten Stock Characteristics

The need for breakdown of freeness measurements into its components has long been recognized. Work (*1*) in this field has indicated that these components

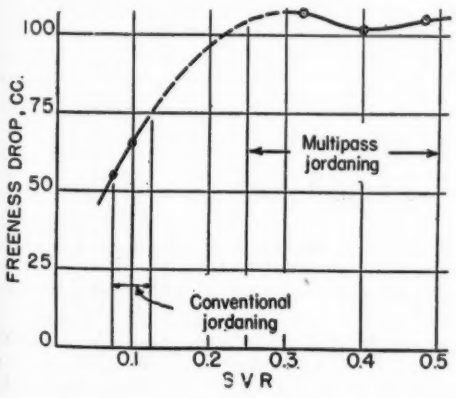

Fig. 2

Effect of Stock Velocity Ratio on Rate of Freeness (Canadian) Drop cc. per 100-hp. hr. per ton.

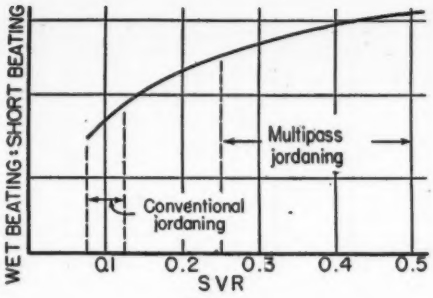

Fig. 3

Effect of Stock Velocity Ratio on Stock Characteristics.

consist of two main groups of distinctly different nature. One group can be reasonably defined as those physical effects of beating which merely increase the fiber surface exposed to water and to bonding. The other group can now only be defined as those beating effects which alter stock behavior and finished sheet characteristics but do not fall in the first group. To put a name on either of these groups is to "lead with the chin." The names I prefer, since they mean more to the papermaker, are "short-beating" and "wet-beating," respectively. Both of these exist, though in widely varying proportions, in any beating process. Both exert powerful effect upon finished sheet characteristics. In most of the paper made, wet-beating is more desirable than short-beating, though in some grades this is reversed. *In liner stocks for printing paperboards, the extent to which wet-beating can be accomplished determines the printing and strength qualities obtained. The extent to which the ratio of wet-beating to short-beating done can be maintained uniformly determines the degree of uniformity of all quality factors, and to a considerable degree, the efficiency of the paper machine operation.*

Both of these beating effects accomplish freeness drop, and any control mechanism which fails to evaluate the ratio in which these two factors contribute to the over-all freeness drop fails also as a control mechanism.

Fiber-length classification *(2)* has developed to the degree that it is now ready for adoption as a control mechanism, and as such promises to be of great value in proper assessment of beaten stock characteristics.

Optical fiber-length measurement, wetness tests of one form and another, and tearing resistance measurement on standard handsheets all give fair indications of the type of beating done by any procedure and equipment.

These procedures were followed to determine the effects upon beaten stock characteristics resulting under commercial conditions, on all-sulphate furnishes, from varying the stock velocity ratio in recirculated jordan-beating processes. The ordinate in Fig. 3 represents the ratio of wet-beating to short-beating resulting, at finished freenesses, under various conditions of gallonage throughput of the jordans.

Because of the lack of standardization of the method used, this graph can be considered of only qualitative value. It can be accepted as such without reservation, as its form has been verified in all of many observations, in stock behavior on the machine, in standard handsheet tests, and in finished sheet characteristics.

The slope of the curve in Fig. 3 in the region designated "range of conventional jordaning" shows the sensitivity of the stock to small changes in jordan feed. The ordinate in this range shows the relatively low degree of wet-beating, and the relatively high degree of short-beating done at these jordan feed rates.

Following the curve into the range of multipass jordaning we find the stock characteristics ratio less sensitive to changes in jordan feed; approaching an asymptote at which no shortening has been done and freeness drop is entirely due to wet-beating; and we establish a stock velocity ratio of 0.5 above which the slight increase in wet-beating has no commercial value and the additional pumping horsepower is wasted.

We see in these graphs the means of designing our beating process so as to accomplish any set of beaten stock characteristics required by product specifications; to be able to vary these at will between makes of different grades; to do beating much more efficiently than ever before; and to embody more specific and less sensitive beating control than ever before.

Conclusion

1. This properly designed beating process must have a capacity, such, that it can supply properly prepared stock at a rate equal to or in some excess of the maximum machine demand. The greatest excess capacity is needed in paper board mills making a wide variety of grades and weights, and being required to accept relatively small orders. The least excess capacity is needed in mills making long runs of few grades.

2. The process must be designed to yield that ratio of beaten stock characteristics which the product demands. Relatively fixed conditions can be designed into mills making one or few grades. Variable conditions and controlled throughput can be designed into mills making many grades.

3. For mills making one or few grades, such is the proven unit capacity of existing equipment that a full-continuous, fully controllable process is now available, with low capital, floor space, power, and labor requirements per ton yielded.

4. For mills making many grades in relatively small quantities a batch process (the only feasible type under these conditions) is possible with efficiency, flexibility, and control factors never before realized, which yields uniformity of product and efficiency of capital and operating expenditures. The operation of this process is 1-stage beating, and the beating, carried out entirely separated from the paper machine, reduces time and fiber losses in making grade changes.

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Production of Pulp from the Fibrous Elements of Sugar Cane Bagasse*

By S. D. Wells[1] and Joseph E. Atchison[2]

Abstract

It is possible to separate the pith cells from the fibrous elements of sugar cane bagasse by means of a preliminary rod-mill treatment with hot sodium hydroxide, followed by a screening operation on a gyratory screen. The optimum conditions for the rod-mill treatment are: 15% consistency, 9% of sodium hydroxide on the basis of the moisture-free bagasse, and a duration of 20 minutes at 95 to 97 deg. C.

The fibrous portion may be cooked by the soda or kraft process, giving about 24% of bleached pulp suitable for use in high-grade book or bond papers.

The pith may be mixed with kraft pulp to produce a paperboard with all the strength properties (except tearing resistance) showing an improvement over those of a kraft paperboard. As much as 70% pith may be used. The presence of the pith actually increases the stiffness of the paperboard and improves its appearance and formation.

The fibers of bagasse are fine, strong, and flexible, and are suitable for manufacture into high-grade pulp and paper. However, in addition to the fibers, there is an appreciable amount of short, nonfibrous cells or pithy material which has a very low felting power. If left in the pulp, these cells render it more difficult to bleach, tend to slow up the beaten stock excessively, decrease the strength properties greatly, and make the product unsuitable for conversion into high-grade paper. Digestion of the pithy material consumes much more of the chemical than does the fiber, yet it yields but little chemical pulp. On the other hand, if the pith is removed and discarded, the yield of pulp from bagasse is entirely too low to permit economic production. Many investigators have advocated separation of the fibrous elements from the pith, *(1, 2)* but none have attempted to put such a process into commercial operation because there was no use for the pith. As a result of this, many mills have failed in their attempt to produce a salable paper from bagasse, because they sought a high yield by leaving the pith cells in the finished product.

It is apparent, therefore, that if a suitable use can be found for the pith, and an efficient and inexpensive method can be devised to separate the pith from the fiber, the total yield of usable stock will be high, and objections to the use of bagasse as a raw material for papermaking may be overcome.

The purpose of this study was to separate the pith

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.
Submitted by the junior author as a thesis in partial fulfillment of the requirements of The Institute of Paper Chemistry for the degree of Master of Science from Lawrence College, Appleton, Wis., June, 1940.
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from the fibrous elements of bagasse, to produce an easy bleaching pulp from the fibrous elements, and to use the pith as a filler and stiffening in kraft paperboard.

The line of attack was similar to that described by Wells *(3)* in a patent issued for the separation of pith from the fibrous elements of such cellulosic material as bagasse, and the utilization of each component for products for which it is most suitable. Raw bagasse was treated in a rod mill with partially spent caustic black liquor from a subsequent digestion step, this treatment bringing about a separation of the fibrous and cellular elements. After removal of spent liquor from the stock, a screening operation followed in which the fiber was separated from the pith on a gyratory screen. The fibrous material was then cooked in a short digestion process with cooking liquors containing an excess of caustic. The partially spent cooking liquor was removed and used in the preliminary treatment in the rod mill. The unbleached pulp was subjected to a bleaching operation consisting of two stages. The pith was mixed with unbleached southern kraft in various proportions and made into ninepoint corrugating paperboard. Optimum conditions for all of the operations were determined.

Experimental Procedures

Raw bagasse was obtained in bales from the Audubon Sugar School of Louisiana State University. It had been baled and shipped immediately after the grinding and extraction process in the sugar mill. The moisture content was about 45% and it contained some residual sugar which was in the process of fermentation. As a result of the severe action of the grinding rolls, the material was broken up sufficiently for use without further mechanical disintegration.

An experimental Marcy rod mill designed for batch operation was used for the rod-mill treatment. The best operating conditions were found with 500 grams of moisture-free bagasse. The interior of the drum and the rods were heated to about 90 deg. C. by direct addition of steam, and raw bagasse (equivalent to 500 grams moisture-free weight) was distributed among the rods. Partially spent cooking liquor was added in an amount sufficient to give the desired concentration and consistency for the run. The drum was rotated for 20 minutes, after which the semicooked pulp was discharged, washed, and prepared for screening.

After it was found that sufficient separation of pith from fiber could not be effected by use of a stationary inclined screen, a small gyratory screen was used. The screening of the semicooked pulp was a batch operation, about 300 grams of pulp being screened at a time. The pith and short fibers were washed through the screen, and the long fibered stock and fiber bundles were retained thereon.

Cooking the Fibrous Fractions

The digester used was an experimental horizontal rotating digester lined with stainless steel. The cooking liquor was added to the semipulp, and the suspension thoroughly mixed before addition to the digester; a liquor ratio of 10 parts of liquor to 1 part of dry semipulp was used. The temperature was raised gradually to 100 deg. C. during a period of 35 minutes, during which time some false pressure was built up because of the air present in the digester. It was then gassed down to zero pressure, after which cooking was continued. The temperature was raised to 160 deg. C. during a period of 85 minutes. The digester was immediately gassed down to zero pressure and the entire charge dumped into a large earthenware crock. The pulp was separated from the black liquor and washed free of caustic. The black liquor was saved for use in the preliminary rod-mill treatment of the next batch of bagasse.

The pulp was screened on a small flat screen and the yields of acceptable pulp, fines, and screenings were determined.

Bleaching

The fully cooked pulp was bleached in a 2-stage process consisting of a chlorine-water bleach, washing, 1% caustic extraction, washing, and a final hypochlorite bleach which brought the brightness to about 80.

Physical Testing of Pulp

The bleached pulp from the various cooks was processed in a standard 1.5-pound laboratory beater of the Niagara type. The method followed was that of TAPPI Standard T 200 m. Handsheets were made from the samples taken at the various beating intervals using the British sheet machine (TAPPI Standard T 205 m). They were conditioned at 65% relative humidity and 70 deg. F. for at least six hours before running the physical tests. The tests included basis weight, caliper, burst, tear, fold, and opacity.

Mixtures of Bagasse Pith and Unbleached Kraft

An experimental beater charge of unbleached southern kraft pulp was beaten to a Schopper freeness of 400 cc. A similar beater charge of the bagasse pith fraction obtained in the screening operation was beaten to the same freeness. Mixtures were made of the two beaten stocks, ranging from 100% pith to 100% kraft through seven variations. The stocks were thoroughly mixed by high speed agitation and an amount equivalent to 5.6 grams moisture-free weight was transferred to a Noble-Wood sheet mold for each handsheet made. This amount of stock gave an 8 by 8-inch sheet which was approximately 0.009 inch thick.

A second set of paperboard handsheets was made, using a different procedure for the preparation of the two stocks. The unbleached kraft (500 grams) was treated in the rod mill in cold water for 5 minutes at 15% consistency and for 10 minutes at 7% consistency. A beater charge of this pulp was then beaten for 30 minutes, using 6500 grams weight on the bedplate. A suspension of unbeaten bagasse pith was made, having the same consistency as the kraft, and mixtures were made of the two ranging from 100% pith to 100% kraft through five variations. Handsheets were made on the Noble-Wood machine by the same procedure as before.

The handsheets were seasoned in the humidity room for at least six hours and were then tested for the following characteristics by the standard procedures: basis weight, caliper, bursting strength, tearing resistance, and Riehle stiffness.

Data and Results

The preliminary work consisted of determining the optimum conditions to be used in carrying out the

various operations. The first problem was the determination of the optimum conditions to be used in the preliminary rod-mill treatment so as to effect maximum separation of pith and fibrous elements. Closely related to this was the problem of separating the pith from the fiber after the rod-mill treatment.

From a study of the results obtained by using various conditions in the rod-mill runs, it was concluded that the most favorable results could be obtained if the amount of caustic were 9% of the weight of fiber, (moisture-free basis) the consistency 15%, and the duration of the rod-mill treatment 20 minutes at a temperature of 95 to 97 deg. C. This would be equivalent to passage through two commercial 7 by 16-foot mills in series at the rate of 60 tons per day with a power consumption of 182 horsepower each.

An attempt to screen this semipulp on a stationary inclined screen indicated that this method of separation was inadequate for complete separation of pith from fiber. However, by means of the gyratory screen, an almost complete separation of pith from fiber was effected.

Preliminary cooks were made by the soda process in an attempt to find the optimum conditions for cooking the semipulp so as to produce an easy bleaching pulp. An excess of caustic was used in the cooking operation to ensure sufficient residual caustic in the resulting black liquor so that it could be used for pulping in the preliminary rod-mill treatment of subsequent runs.

Final Experimental Work

After all optimum conditions were determined, they were used in carrying out the entire sequence of operations—rod-mill treatment, separation, cooking the fibrous fraction, and bleaching in a 2-stage process. The cooking and bleaching operations were carried out in the same manner on the incompletely fractionated semipulp which was obtained by separation on the inclined stationary screen. The latter semipulp contained a large proportion of pithy material which was not separated in the screening operation. The results of this sequence of operations are given in Tables I, II, and III; in Cook 1 the incompletely fractionated semipulp was used, and in Cook 2 the semipulp retained on the gyratory screen was used.

TABLE I.—RESULTS OF ROD-MILL RUNS

	Stationary screening	Gyratory screening
Yield of screened semipulp (pith plus fiber) from rod-mill runs, %	70.5	70.5
Proportion of pith, %	23.5	50.5
Proportion of fibrous fraction, %	76.5	49.5
Residual active alkali in spent black liquor as Na_2O in g./l.	1.18	1.35

TABLE II.—DATA AND RESULTS OF COOKS 1 AND 2

	Cook 1	Cook 2
Weight of dry semipulp cooked, g.	1845	1175
Consistency in digester, %	9.86	10
Total alkali added as Na_2O, %	23.3	23.3
Time required to reach 100 deg. C., min.	50	35
Time to gas to zero pressure, min.	5	5
Time to reach 160 deg. C., min.	75	85
Time to gas to zero pressure, min.	10	5
Total cooking cycle, min.	140	130
Permanganate number of acceptable pulp	9.73	9.3
Yield of acceptable pulp on basis of stock charged, %	63	61
Yield of acceptable pulp on basis of original bagasse, %	34.6	21.7
Alkali consumed as Na_2O on basis of charge, %	15.23	9.0

TABLE III.—RESULTS OF BLEACHING COOKS 1 AND 2

	Cook 1	Cook 2
Moisture-free weight of pulp bleached, g.	500	500
Available chlorine consumed in first stage, %	1.77	3
Time to exhaustion of chlorine, min.	20	65
Time of caustic extraction, min.	60	60
Available chlorine consumed in hypochlorite stage, %	2.82	2
Total time to exhaustion of hypochlorite, hr.	5.5	3.75
Yield in bleaching, %	94.2	94.5
Yield of bleached pulp on basis of original bagasse, %	32.7	20.4
Total yield of pith and very short fiber on basis of original bagasse, %	16.6	35.6
Total yield of usable stock on basis of original bagasse, %	49.3	56.0
Total chlorine consumed in bleaching, %	4.59	5.0
Brightness of bleached pulp	67.9	77.3

It can be seen from these results that separation of pith from fiber was much more efficiently carried out by use of the gyratory screen than by use of the inclined stationary screen. When using the gyratory screen about half of the total yield of semipulp was separated as pith and very short fibers and the fibrous fraction consisted entirely of long fibers and fiber bundles.

The results of the cooking operation show that the yield from both cooks were about the same but that the semipulp with a large proportion of pithy material consumed much more chemical than the nearly homogeneous fibrous material. The higher permanganate number of the pulp from Cook 1 indicated that it would be more difficult to bleach than the pulp from Cook 2.

In the bleaching operation it was found that the pulp from Cook 2 had a much brighter appearance after bleaching than that from Cook 1. Although slightly more chlorine was used on the pulp from Cook 2, part of this chlorine was not actually consumed because of the extremely long time required for exhaustion in the first stage. The lower brightness of the pulp from Cook 1 after bleaching indicates strongly that the pithy material is more difficult to bleach and is more transparent than is the fibrous material.

Both of these bleached pulps were processed in an experimental beater, and the results of the beater evaluations are tabulated in Tables IV and V.

TABLE IV.—BEATER EVALUATION OF BLEACHED PULP—COOK 1

Time min.	Freeness S-R	Burst %	Folds M.I.T.	Tear factor	Opacity contrast ratio, %	Apparent density
5	650	45.7	23	0.673	68.1	15.6
25	370	57.4	123	0.467	59.5	16.5
40	235	61.7	44	0.492	56.6	16.6
50	175	59.2	48	0.462	55.8	17.2

TABLE V.—BEATER EVALUATION OF BLEACHED PULP—COOK 2

Time min.	Freeness S-R	Burst %	Folds M.I.T.	Tear factor	Opacity contrast ratio, %	Apparent density
0	800	51.1	29	0.900	65.7	14.45
10	765	65.6	78	0.763	61.4	14.40
25	650	76.5	206	0.716	62.5	14.65
40	515	85.7	522	0.708	58.2	15.52
55	400	86.3	428	0.595	53.8	16.13
60	340	85.7	788	0.610	53.0	16.05

The pulp from Cook 1 developed rapidly, and the strength properties were low but sufficiently high for the type of papers in which a pulp of this kind would be used. The rapid decrease in freeness and the low strength is attributed for the most part to the large proportion of fine pithy material in the pulp and not to the lack of strength of the fibers themselves.

The appearance of the handsheets made from the pulp of Cook 2 was much better than that from Cook 1 on account of the absence of pithy material. The strength tests were much higher and the freeness decreased much less rapidly with beating. All characteristics of the sheet were satisfactory for use as high-grade paper. However, the yield on the basis of the original bagasse was low, being only 20.4%. This low yield of bleached fiber is not important when the total yield of unbleached pith is added to this figure. The yield of pith on the basis of the original bagasse was 35.5%. This can be used as a filler in kraft paperboard. This gives a total yield of usable stock

of 55.9%, which is entirely satisfactory from a commercial standpoint.

Mixtures of Bagasse Pith and Unbleached Kraft

The nature of the pith fraction indicated that it might be used as a filler and possibly as a stiffening agent in kraft paperboard. Two series of runs were made with this idea in mind. In the first series, both kraft and pith were beaten separately to a freeness of 400, mixed in various proportions, and made into sheets. The results of this series are shown in Table VI.

TABLE VI.—STRENGTH CHARACTERISTICS OF BOARD
(All mixtures at 400 freeness)

Pith %	Kraft %	Burst %	Riehle %	Tear factor
100	0	39.1	12.17	0.487
80	20	61.4	14.80	0.974
60	40	79.6	12.63	1.467
50	50	81.5	13.39	1.665
40	60	90.2	13.72	1.778
20	80	92.7	13.79	2.230
0	100	75.2	13.90	2.640

In the second series, the kraft was given a preliminary rod-mill treatment and then beaten for 30 minutes; the pith was unbeaten. Mixtures were made of these two stocks and sheets were made as in the first series. Results of the second series runs are shown in Table VII and Fig. 1.

TABLE VII.—CHARACTERISTICS OF BOARD MIXTURES OF UNBEATEN PITH AND BEATEN KRAFT

Pith %	Kraft %	Freeness S-R	Burst %	Riehle %	Tear factor
100	0	530	34.8	14.4	0.45
70	30	555	63.9	16.1	1.13
50	50	480	82.2	16.3	1.67
30	70	550	95.4	14.7	2.02
0	100	670	93.3	13.4	2.81

The basis weight for all sheets tested is on a ream size of 25x40—500.

It is apparent from the above results that mixing bagasse pith with kraft improves all of the strength values of the paperboard except the tearing resistance which, however, is higher than that needed for corrugating paperboard.

The strength characteristics of the paperboard prepared in the second series of runs appears to be much better than those prepared from stock at the lower freeness. The stiffness of the paperboard is actually materially increased by addition of the pith and is higher for the pure pith paperboard than for the pure kraft paperboard. The bursting strength is much greater and the tearing resistance sufficiently high for commercial ninepoint corrugating paperboard, even when as much as 70% pith is used in the paperboard.

In all cases the appearance and formation of the sheet was much better when a high content of pith was present than when the sheet contained a high content of kraft.

These results show that the pith fraction of the semicooked pulp can be used in paperboard with satisfactory results. The fact that the pith undergoes only a short treatment renders it suitable for use at a decided advantage, because of the low chemical cost involved and the small amount of mechanical treatment.

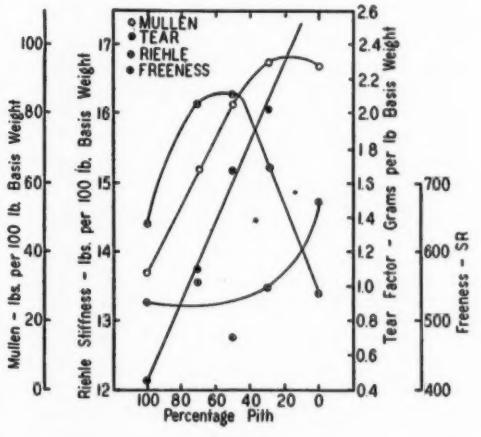
MULLEN
TEAR
RIEHLE
FREENESS
Mullen - lbs. per 100 lb. Basis Weight
Riehle Stiffness - lbs. per 100 lb. Basis Weight
Tear Factor - Grams per lb Basis Weight
Freeness - SR
Percentage Pith
100 80 60 40 20 0
0 20 40 60 80 100
12 13 14 15 16 17
0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6
400 500 600 700

FIG. 1
Strength Characteristics of Mixtures of Bagasse Pith and Unbleached Kraft Pulp. Varying Freeness.

Comparison of Soda and Kraft Cooking

Several of the investigators who have cooked raw bagasse by both the soda and kraft processes contend that better results were obtained by the kraft process than by the soda process *(2, 4)*. Since the pith fraction can be advantageously used with kraft pulp in the manufacture of paperboard, it seemed advisable to make a study of the kraft process as a means of cooking the semipulp.

Another group of rod-mill runs was made in which sufficient semipulp was prepared to make a sulphate cook and an additional soda cook for comparison. The semipulp was screened on the gyratory screen and the fibrous fraction for the cooks was rather uniform in composition.

A permanganate number was run on both the fines and fibrous fractions of the semicooked pulp and the fully cooked pulp to determine which fraction was attacked more severely by the cooking liquor. The results of the rod-mill runs are given in Table VIII.

TABLE VIII.—RESULTS OF ROD-MILL RUNS

Total yield of semipulp from rod-mill runs, %	73.2
Proportion of pith separated, %	42.8
Proportion of fibrous fraction, %	57.2
Residual active alkali in spent black liquor, g./l.	1.02
Permanganate number of fibrous fraction	31.35
Permanganate number of pith fraction	35.65

The total yield of semipulp from the rod-mill treatment was slightly higher than in the previous rod-mill runs, probably because the content of water-soluble substances in the raw bagasse had been reduced by fermentation of the residual sugar. The action of the gyratory screen was not as drastic as before, and there was not as sharp a separation of the fibrous material from the pith.

The difference in permanganate numbers of the two fractions would seem to indicate that the lignin content of the pith is higher than that of the fiber. Because of the smaller size of the pith particles and the great area exposed to the cooking liquor, the action of the chemical should be greater on these than on the fibers; yet the pith has the higher permanganate number. From this it must be concluded that the pith consumes more chemical than the fiber and therefore it should be given as little chemical treatment in the process as possible. For its use in paperboard a high degree of cooking is unnecessary and the highest possible yield is desirable.

The results of the cooking by the kraft and soda processes and the bleaching operations are shown in Tables IX and X.

The yield by the kraft process was higher. The pulp was cooked to a lower permanganate number and

TABLE IX.—DATA AND RESULTS OF COOKS 3 AND 4

	Kraft	Soda
Weight of dry semipulp cooked, g.	1000	1000
Consistency in the digester, %	10	10
Total alkali added as Na_2O, %	23.3	23.3
Ratio of NaOH to Na_2S (both expressed as Na_2O)	2/1	....
Time to reach 100 deg. C., min.	30	35
Time to gas to zero pressure, min.	5	5
Time to reach 160 deg. C., min.	80	85
Time to gas to zero pressure, min.	5	5
Total cooking cycle, min.	120	130
Permanganate number of acceptable pulp	8.7	11.35
Permanganate number of fines	....	14.20
Yield of acceptable screened pulp, %	65.0	61.7
Yield of fines, %	4.0	3.3
Yield of acceptable pulp on basis of original bagasse, %	27.2	25.8
Alkali consumed as Na_2O on basis of charge, %	7.5	6.3

TABLE X.—RESULTS OF BLEACHING PULP FROM COOKS 3 AND 4

	Kraft	Soda
Moisture-free weight of pulp bleached, g.	500	500
Available chlorine consumed in first stage, %	2	2.5
Time to exhaustion of chlorine, min.	50	55
Available chlorine consumed in hypochlorite stage, %	2.5	2
Time to exhaustion of hypochlorite, hr.	4.25	3.25
Yield in bleaching, %	90.7	93.8
Yield of bleached pulp on basis of original bagasse, %	24.7	24.2
Total yield of pith and very short fiber fraction on basis of original bagasse, %	33.07	32.77
Total yield of usable stock on basis of original bagasse, %	57.77	56.97
Total consumption of available chlorine, %	4.5	4.5
Brightness of bleached pulp	79.48	77.42

bleached more easily, although the cooking time for the kraft cook was 10 minutes shorter than the time for the soda cook.

The fully cooked fines had a higher permanganate number than the fully cooked fiber, which further indicates that the fines contain more noncellulosic material than the fiber. Further comparison of the two cooks show that they closely parallel each other and that there is no great difference in any of the results. There was no characteristic kraft odor at any time during the kraft cook which indicates the absence of methoxy groups in bagasse. Beater evaluations made on the bleached pulp from each of the two cooks are shown in Tables XI and XII.

TABLE XI.—BEATER EVALUATION OF COOK 3 (KRAFT)

Time min.	Freeness S-R	Basis wt.	Apparent density	Burst %	Folds M.I.T.	Tear factor	Opacity contrast ratio, %
5	800	47.5	14.4	54.3	40	0.674	67.0
20	665	57.7	15.1	70.4	52	0.610	71.3
35	575	46.8	15.6	76.1	177	0.505	60.7
50	410	45.3	16.1	80.3	603	0.497	55.7
60	300	45.2	17.1	85.7	586	0.424	52.8

TABLE XII.—BEATER EVALUATION OF COOK 4 (SODA)

Time min.	Freeness S-R	Basis wt.	Apparent density	Burst %	Folds M.I.T.	Tear factor	Opacity contrast ratio, %
5	810	47.3	14.3	59.2	33	0.778	66.3
20	770	47.2	15.2	74.0	109	0.702	64.1
35	720	47.1	15.7	79.9	262	0.680	61.7
50	650	46.2	15.4	85.6	248	0.673	61.7
65	570	45.8	15.8	91.0	411	0.631	58.3
80	540	45.2	15.9	92.2	765	0.602	55.7
100	420	46.4	16.5	99.5	1559	0.552	52.9

The strength properties on the soda-cooked pulp were higher than those on the sulphate-cooked pulp, but this was to be expected because the sulphate cook was slightly more drastic in its action on the fiber, as is shown by the lower permanganate number and lower bleach requirement.

The objection to the use of bagasse because of its bulkiness is overcome by this 2-stage treatment. The semicooked fibrous fraction has a much higher density than the raw bagasse and requires less digester capacity per ton of product than wood. Since the total cooking cycle requires only two hours, and the maximum pressure is only 75 pounds gage, the production per cubic foot of digester capacity would be much more than when wood is used as the raw material.

The bleached pulp possessed high strength properties and its characteristics, when made into a sheet, indicate that it could be used successfully for conversion into a high-grade book or bond paper. The fineness of the fiber renders the pulp particularly suitable for lightweight papers of all kinds.

The pulp fiber possesses such characteristics that uniform formation results when it is made into a sheet, and little if any beating or refining is required.

The pith fraction can be mixed with unbleached kraft pulp for the production of a high-quality corrugating paper. The strength qualities of the paperboard are sufficiently high for commercial use when as much as 70% pith is used in the mixtures. The presence of pith in the kraft paperboard actually increases the stiffness and improves the appearance and formation of the paperboard.

Although the final yield of bleached pulp is low on the basis of the original raw bagasse, when it is considered that the pith (which has had relatively little chemical treatment) can be utilized in making paperboard, the total yield of usable stock is high. The total yield of bleached pulp and pith is between 55 and 60%.

On the basis of a delivered price of $5 per ton for bagasse and a value of $10 per ton for the pith fraction in paperboard manufacture, the cost of the bleached fiber is not over $36 per ton under conditions that prevailed in 1940.

It was found that raw bagasse deteriorates little in storage, and the strength properties of the pulp produced from it after six months storage were even higher than those of the pulp produced from the fresh bagasse. During storage, the residual sugar ferments rapidly, and, as a result, the yield on the basis of the dry bagasse is increased. It has been reported *(5)* that with proper methods of storage the amount of deterioration is small, even over a period of several years.

Conclusions

It is possible to separate the pith cells from the fibrous elements of raw sugar cane bagasse by means of a preliminary rod-mill treatment with hot caustic followed by a screening operation on a gyratory screen.

The optimum conditions for the rod-mill treatment are as follows: 15% consistency, 9% caustic on the basis of the moisture-free bagasse, and a duration of 20 minutes at 95 to 97 deg. C.

The pith fraction consumes chemical more rapidly than the fibrous fraction; therefore for economy of chemical consumption it is desirable to remove the pith as early in the process as possible and with just sufficient chemical to effect a separation of the pith cells and fines which can be screened out.

The presence of a large proportion of pith in the pulp renders it more difficult to bleach, tends to slow up excessively the beaten stock and greatly decreases the strength properties.

A high quality, easily bleachable pulp can be produced from the fibrous fraction by either a mild soda or sulphate cook with a straight-line temperature rise to 160 deg. C. over a period of from 120 to 130 minutes. The sulphate process gives a slightly higher yield of pulp that is more easily bleached than the soda cook with the same concentration of active alkali.

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(3) Wells, Sidney D., U. S. patent 2,029,973 (Feb. 4, 1936).
(4) Lynch, D. F. J., and Goss, M. J., *Ind. Eng. Chem.* 24:1249-1259 (1932).
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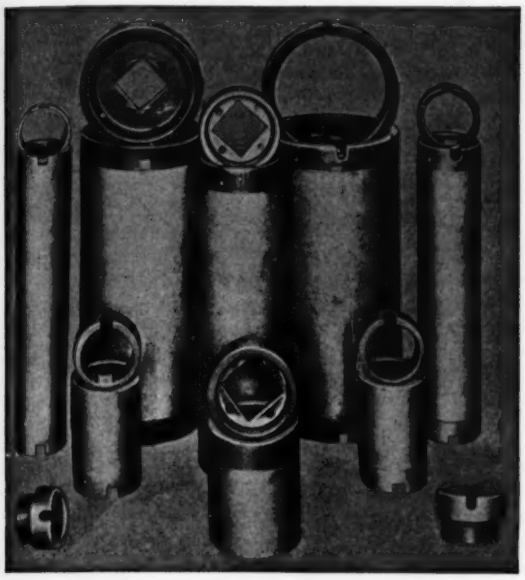

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CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

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Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING MARCH 22, 1941

SUMMARY

Cigarette paper .....70 casks, 116 cs.
Newsprint .....9,630 rolls
Miscellaneous paper.....97 cs.

CIGARETTE PAPER

Rohner Gehrig & Co., ———, Fort de France, 9 cs.
Champagne Paper Corp., ———, Fort de France, 95 cs.
Standard Products Corp., ———, Fort de France, 12 cs., 70 casks.

NEWSPRINT

———, ———, Liverpool, N.S., 5,737 rolls.
———, ———, Port aux Basques, 3893 rolls.

MISCELLANEOUS PAPER

P. J. Schweitzer, ———, Fort de France, 97 cs.

RAGS, BAGGINGS, ETC.

———, ———, Buenos Aires, 45 bls. rags.
Williamson Products Co., ———, Santos, 105 bls. cotton picker waste.
Green Textile Associates, ———, Bombay, 531 bls. cotton waste.
Padawer & Co., ———, Bombay, 200 bls. cotton waste.
Riverside Mills, ———, Bombay, 200 bls. cotton waste.
W. Intner Co., ———, Bombay, 200 bls. cotton waste.
Camden Fibre Mills, ———, Bombay, 400 bls. cotton waste.
C. Comiter, ———, Bombay, 300 bls. cotton waste.
Camden Fibre Mills, ———, Bombay, 100 bls. cotton waste.
C. Comiter, ———, Bombay, 300 bls. cotton waste.
———, ———, Santos, 1,033 bls. cotton linters.
Schimmel Trading Corp., ———, Pernambuco, 62 bls. cotton linters.

OLD ROPE

———, ———, Cristobal, 1 bale.
Guaranty Trust Co., ———, Calcutta, 100 bls. (old hemp rope and string cuttings).

HIDE FLESHINGS

———, ———, Calcutta, 1003 bls.

GLUE STOCK

Chase National Bank, ———, Buenos Aires, 102 bls.
———, ———, Buenos Aires, 25 bls.

CASEIN

Chase National Bank, ———, Buenos Aires, 834 bags.
American Cyanamid & Chemical Corp., ———, Buenos Aires, 834 bags.

LOS ANGELES IMPORTS

WEEK ENDING MARCH 22, 1941

———, ———, Kobe, 2 cs. hanging paper.
———, ———, Powell River, 2,505 pkgs. newsprint.

Pulp Consumers Want Representation

WASHINGTON, D. C., March 27, 1941—The newly formed Association of Pulp Consumers, Inc., 716 Mills Building, Washington, D. C., has requested equal representation with the integrated paper mills on the Pulp and Paper Section of the National Defense Work. Pointing out that the present two members of the Section (D. C. Everest, president and general manager of the Marathon Paper Mills Company, vice-president of the Longview Fibre Company, president of the Ontonagon Fibre Corporation, and an officer and director of many other paper and pulp companies; and Charles W. Boyce, executive secretary of the Kraft Paper Association, whose membership consists largely of firms which produce their own pulp) are both closely identified with paper mills which produce both pulp and paper, the association requested that the paper mills which purchase all of their wood pulp requirements be given equal representation. The resolution as adopted by the Board of Directors of the Association of Pulp Consumers, Inc., is as follows:

WHEREAS, the paper industry of the United States is divided into two large, competitive groups, one group consisting of paper mills which produce wood pulp for their own consumption and the other consisting of paper mills which purchase the wood pulp which they consume; and

WHEREAS, these two groups compete with each other in the sale of paper; and

WHEREAS, the proper competitive situation requires that the interests of both groups be equally considered in any policies affecting wood pulp and paper; and

WHEREAS, the present two members of the Pulp and Paper Section, of the Agriculture and Forest Products Division in the Office of Production Management, are both identified with paper mills which produce both pulp and paper: Now, therefore, be it

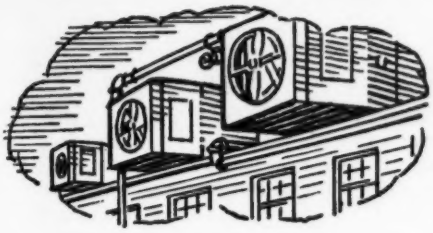
RESOLVED, that the Office of Production Management be, and it hereby is, requested and urged to give the paper mills which purchase all their wood pulp requirements equal representation with the paper mills which produce wood pulp for their own consumption, on the Pulp and Paper Section of the Agriculture and Forest Products Division in the Office of Production Management; and be it further

RESOLVED, that a copy of this resolution be sent to the Director General of the Office of Production Management.

Paper Box Shipments Higher

Shipments of folding paper boxes into the metropolitan New York area by members of the Folding Paper Box Manufacturers' Association, Inc., in February were valued at $779,128, compared with shipments of $802,235 in January and with shipments of $711,721 in February last year.

AVERAGE SAVING $1,198.00 A MONTH

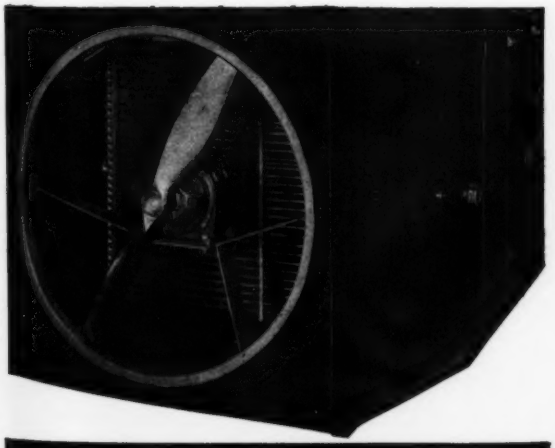


• In one mill a three-unit installation of the Stickle Economizer for Heat Reclamation resulted in direct saving of 3,000 lbs. of steam an hour. Based on steam costs in this plant this saving equalled $46.08 a day, or $1,198.00 a month. The increased volume of heated water for showers and beaters resulted in increased production and improved quality of paper. In many plants the application of this system will improve the ventilation of machine room.

The steam saving indicated represents average of tabulation from daily readings of company's steam flow meters over an adequate testing period. Translated into terms of steam-cost dollars, the steam saving liquidated the cost of the Stickle installation within a few months.

If you are interested in reducing *your* steam costs—improving quality and increasing production—let our engineers make suggestions. They will check your plant and submit a report of their findings, at our expense, and without obligation to you or your company. Ask for detailed information. STICKLE STEAM SPECIALTIES COMPANY, 2245 Valley Avenue, INDIANAPOLIS, IND.

The Stickle Economizer for Heat Reclamation represents a major development in modern paper mill equipment to overcome waste and improve operating efficiency. Halftone below made from photograph of one of the units of the installation mentioned above.



STICKLE *Economizer*
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CENTURY
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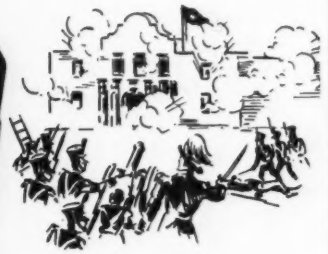

"REMEMBER THE ALAMO"

A small band of Americans and Texans under Colonel W. B. Travis made history during the Mexican War in 1846 by their gallant stand at the seige of Fort Alamo. Although greatly outnumbered, they held out for 12 days before they were killed to the last man. Their tragic death furnished the battle cry, quoted above, which "sparked" the Americans to eventual victory.

About this same time one of our parent companies was pioneering in the manufacture of calender and embossing rolls. This enterprise has been continuously maintained for nearly a century and is now known as Textile's Roll Department.

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New York Paper and Pulp Market Review

Paper Market Active Under Broader Demand and With Paper Board Production Up 5% — Chemical Pulp Market Active and Prime Scarce — No. 1 Mixed Advanced — Rag Market Firmer.

Office of the PAPER TRADE JOURNAL,
Wednesday, March 26, 1941.

Wholesale business in the paper market continues at a high level, according to reports received from many manufacturers' representatives, jobbers, and general paper merchants during the week. The uptrend in retail sales and the increasing general business activity is viewed as indicative of a record-breaking period for many months in the future. Although higher taxes and a low price level are pointed out as possible deterrents to achieve the more optimistic forecasts made for the future, current indices support the most favorable expectation.

The strong uptrend is reflected in the general index of business activity for the week ended March 15 which rose to 122.1%, from 121.7% for the previous week, compared with 99.8% for the corresponding week last year. Paper board production showed a gain of 5.0%.

Paper production for the week ended March 15 was estimated at 89.9%, compared with 84.8% for 1940, with 81.6% for 1939, with 63.9% for 1938, and with 90.7% for the corresponding week for 1937.

Paper board production for the week ended March 15 was 82.0%, compared with 70.0% for 1940, with 70.0% for 1939, with 60.0% for 1938, and with 87.0% for the corresponding week for 1937.

The general demand for paper continues to steadily broaden out under the stimulus of rising general business activity. The price situation, not only in paper, but of many kinds of goods and commodities, is becoming of increasing importance. So far as paper is concerned, the current price level is very widely regarded as too low. But other lines, including even the prices of most agricultural products, are also out of line and below an equitable price level compared with former years. As the increasing current demand is real buying power backed by rising employment and larger payrolls, pressure is being exerted from the normal operation of the laws of supply and demand to force prices upward. In view of the mounting total costs of all business enterprises, a higher price level is a reasonable expectation. How high prices may rise is entirely dependent upon the government and any price control measures it may find expedient to adopt.

Trade reports indicate prices are very firm, although no important changes from prevailing market prices have been reported at this date.

Mechanical Pulp

No important change in the market situation of mechanical pulp has been reported this week. Production and demand continue at a high level. Prices are unchanged.

Chemical Pulp

Under a strong demand the chemical pulp market is active with prices firm. Prime grades of sulphite are reported more difficult to obtain and unbleached sulphite is scarce. Prices continue unchanged.

Rags

Quotations on the higher grades of rags are reported more firm this week, under a broader demand from mills. No important change from prevailing representative market prices has been reported at this date.

Old Rope and Bagging

The old rope market is strong this week, with the price trend on old Manila rope upward. Limited supplies from overseas has created a very strong market situation in Manila rope. Higher prices are quite generally expected in the trade, but no important change has been reported at this date.

Trading in old bagging is reported steady, with the market strong and prices firm. No important change in prices has been reported at this date.

Old Waste Paper

Active mill buying has created a strong market in old waste papers, particularly in the lower grades, some of which are higher this week. Advances are reported in the prices of strictly folded news, currently quoted at from .70 to .75; in corrugated, currently quoted at from .62½ to .67½; and in No. 1 mixed paper, currently quoted at from .47½ to .52½.

Twine

No important change in the market situation of twine has been reported at this date. Demand continues to improve. No change from the recently upward revised prices has been reported on any standard grade of twine.

Buys Chase Bag Equipment at Boston

The J. J. Ross Company, dealer in used pulp and paper machinery of every description, 250 Frelinghysen avenue, Newark, N. J., has recently purchased the entire equipment of the Chase Bag Company, at Boston, Ohio, consisting of 1—124 inch cylinder paper machine and all auxiliary equipment. The equipment is presently being offered for sale to the Paper Industry. Readers are requested to send for Catalogue No. 48 — which shows numerous items which the J. J. Ross Company is offering for sale to the trade.

Powell River Co. to Erect Store

Expenditure of about $60,000 to $70,000 is now proposed by the Powell River Company for the erection of a grocery, hardware, drygoods, and general store to replace its present premises in the pulp and paper town of Powell River, B. C.

Plans and specifications have been completed and have been distributed to selected contractors. The new building will be 132 feet square and two stories in height. Erection will be proceeded with at once.

MAPICO Reds

PURE PRECIPITATED OXIDES OF IRON

... use them in your FIBER BOARDS

PERMANENT in color... Unaffected by light, acids or alkalies . . . Possess high tinting strength . . . Have good fiber adhesion . . . Are soft and smooth in texture . . . Show low loss in wash water.

MAPICO REDS *are available in four standard shades. Extended with white, they produce a pleasing variety of orchids, corals and pinks.*

We will gladly send samples and complete technical information.

Produced in the United States of America from native raw material.

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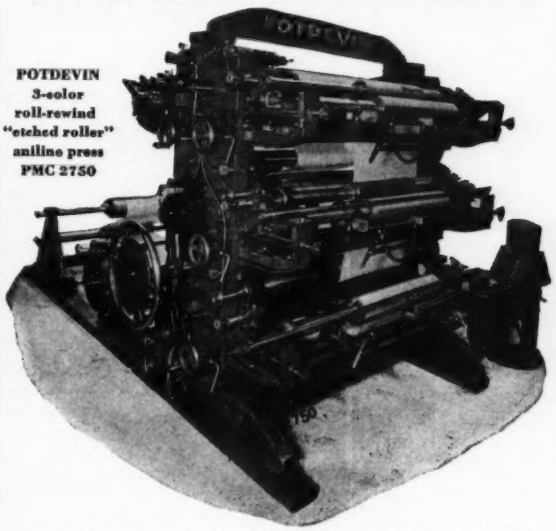

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A high-speed press for paper mill converting plants. High-quality printing. Easy operation. The new POTDEVIN "etched roller" aniline press gives you cleaner, sharper printing. Write for description.

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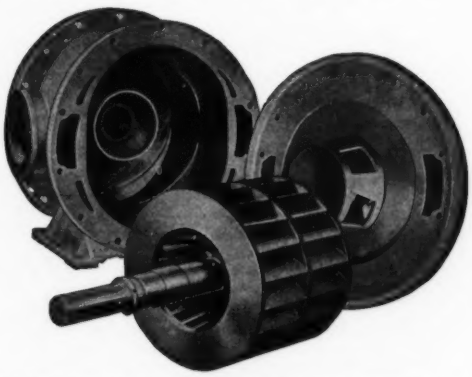

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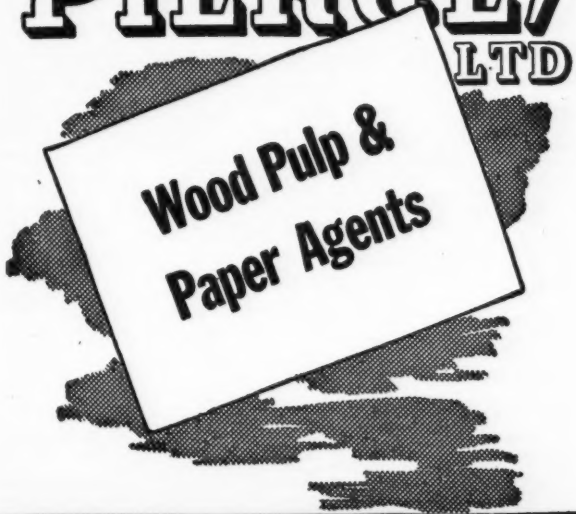
Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

PRICE & PIERCE, LTD



60 East 42nd Street New York City

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, March 26, 1941.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works. Demand reported moderate for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported good for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, with prices unchanged for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 12 cents per pound; 80-100 mesh, at 12½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 12 cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Shipments reported good. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market firm. Shipments reported good for the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices higher on some grades. "G" gum rosin is currently quoted at $1.80 per 100 pounds, in barrels, Savannah "FF" wood rosin is currently quoted at $1.80 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.51 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm and nominal. Demand good. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16.50 per ton on imported salt cake is normal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are fairly firm and continue unchanged for the current week. Pearl is currently quoted at $2.90 per 100 pounds; powdered starch at $3 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Shipments reported steady for the current week. The commercial grades are currently quoted at $1.15, iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	42.50	@	—
Chip	40.00	"	—
Sgl. Mla. Ll. Chip	55.00	"	—
White Pat. Coated	70.00	"	—
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	" 36.50	32.20	" 37.75
85% Rag	....	"	29.90	" 35.00
75% Rag	23.60	" 27.75	24.75	" 29.00
65% Rag	....	"	21.65	" 26.25
50% Rag	17.55	" 21.50	18.70	" 22.75
25% Rag	14.65	" 17.75	15.80	" 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$9.35	@ $11.50	$11.55	@ $12.75
No. 2	8.50	" 10.25	9.65	" 11.75
No. 3	8.05	" 9.25	9.20	" 11.25
No. 4	7.70	" 9.50	8.90	" 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	9.05	"	10.50
No. 2 Offset	8.40	"	9.75
A Grade E. F.	8.20	"	9.50
A Grade S. & S. C.	8.45	"	9.75
B Grade E. F.	7.65	"	8.75
B Grade S. & S. C.	7.90	"	9.00
C Grade E. F.	7.35	"	8.50
C Grade S. & S. C.	7.60	"	8.75
D Grade E. F.	7.10	"	8.25
D Grade S. & S. C.	7.35	"	8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—	
Moist	No prices
Dry	No prices

(Delivered)

No. 1 Domestic and Canadian	40.00 @ 42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
News Grade, delivered Unbleached Sulphite	58.00	"	63.75

(On Dock, Atlantic Ports)

Kraft Bleached	4.12½	"	—
Kraft Light & Strong	3.50	"	3.90
Kraft No. 1	3.40	"	3.80

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	2.75	"	3.37½

(Delivered)

Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	6.12½	@	6.37½
Silesias No. 1	4.50	"	4.65
New Unbleached	6.12½	"	6.37½
Blue Overall	4.15	"	4.50
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.50	"	3.65
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.50	"	1.65
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.15	"	1.20
No. 2	1.00	"	1.05
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

More than just a TRADE MARK

EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

BUT also a guarantee by men who for 75 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

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ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

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KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

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CHEMIPULP PROCESS INC.

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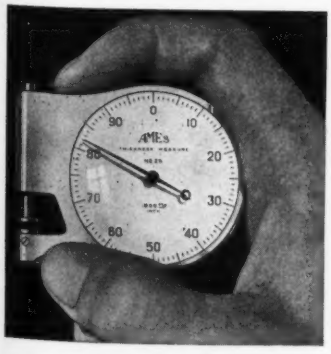

AMES Thickness Measure No. 25

This compactly designed instrument (the only one of its kind made) meets every demand for a neat pocket gauge to measure thicknesses with speed and accuracy.

$10.50
FULLY GUARANTEED

B. C. AMES CO.
WALTHAM, MASS.

SCREENS for PAPER and PULP MILLS

PERFORMANCE of your Centrifugals, Shakers and Drainers definitely improved by the use of precision screens built to your specifications. Let us "sit in" on your screening problems.

The Harrington & King PERFORATING CO.

5652 FILLMORE ST., CHICAGO—114 LIBERTY ST., NEW YORK

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	2.50	@	2.75
Wool Tares, light....	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	5.25	"	5.50
Domestic	5.25	"	5.50
Jute Threads.....	2.75	"	3.00
Sisal Strings	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	"	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book....	.80	"	.85
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.60	"	1.70
Ledger Stock Colored	1.20	"	1.30
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.40	"	1.50
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue..	.70	"	.75
Strictly Folded....	.70	"	.75
Corrugated	.62½	"	.67½
No. 1 Mixed Paper..	.47½	"	.52½

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.19	@	—
White Hemp	.19	"	—
Fine Polished—			
Fine India.....	.22½	"	—
Unpolished—			
Box	.15½	"	—
Paper Makers.....	.15	"	—
Tube Rope.....	.16	"	—
Wall Paper.....	.18½	"	—
Wrapping	.18½	"	—
Soft Fiber Rope...	.16¾	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.11	"	—
Mex. Sisal.....	.10½	"	—
Manila	.24	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06¾	@	.07
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached..	.06	"	.06¾
Washable Prints..	.02½	"	.03
Washable No. 1..	—	"	.01½
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01½
Fancy Percales....	.03	"	.03¼
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.01¾	"	.02
Corduroy	.01¾	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1...	1.30	"	1.35
Domestic No. 2...	1.10	"	1.15
Roofing Bagging..	1.00	"	1.05

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	2.50	@	2.75
Manila Rope.....	—	"	5.50
Sisal Rope.....	2.00	"	2.25
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.55	"	2.75
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.75	"	4.00
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	2.50	"	3.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Special Hard White	2.45	@	2.70
No. 2 Hard White	2.20	"	2.35
No. 1 Soft White..	1.90	"	2.00
No. 2 ordinary White	1.70	"	1.85
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.50	"	1.60
Ledger Stock, colored	1.20	"	1.25
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.60	"	.65
Container Manila....	.50	"	.55
Kraft Paper	1.40	"	1.45
No. 1 Mixed Paper..	.45	"	.50
Straw Board Chip...	.45	"	.50
Binders Board Chip..	.35	"	.40
Corrugated Board...	.60	"	.65
Overissue News.....	.70	"	.75
Old Newspapers.....	.60	"	.65

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.00	"	3.10
No. 1 Soft White	2.50	"	2.75
No. 2 Mixed.....	.90	"	1.00
Solid Ledger Books..	2.00	"	2.10
Overissue Ledger Stock	1.75	"	2.00
White Ledger Stocks	1.50	"	1.65
Mixed Ledgers	1.25	"	—
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	1.15	"	1.20
Manila Env. Cuttings	2.60	"	2.65
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.70	"	1.80
No. 1 Kraft.....	1.62½	"	—
Extra No. 1 Kraft..	1.75	"	—
Mixed Papers.....	.40	"	.42½
Print Manila	.60	"	.65
Container Manila....	.60	"	.70
Old Newspapers.....	.55	"	.60
Paper Wool Strings.	.95	"	1.10
Overissue News.....	.65	"	.70
Box Board Chips....	.35	"	—
Corrugated boxes....	.55	"	.60
Kraft corrugated boxes	.95	"	1.05
New Kraft Corrugated Cuttings	1.75	"	—
Screening Wrappers.	.70	"	.80

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	3.00	"	—
Domestic	2.80	"	3.00
Sisal Rope.....	2.60	"	—
Mixed Rope	.85	"	1.00
Transmission Rope—			
Foreign	2.50	"	2.75
Domestic	2.75	"	2.90
Soft Jute Rope.....	3.50	"	3.75
Manila Rope—			
Foreign	5.25	"	5.35
Domestic	5.50	"	5.75
Jute Carpet Threads	2.00	@	2.25
Bleachery Burlap....	4.00	"	4.50
Scrap Burlap—			
Foreign	2.85	"	3.00
Domestic	2.75	"	3.00
Scrap Sisal.....	2.50	"	2.60
Scrap Sisal for Shredding	2.50	"	2.60
Wool Tares—			
Foreign .....(nominal)			
Domestic	2.85	"	3.00
Aust. Wool Pouches.	2.75	"	3.00
New Burlap Cuttings	3.75	"	4.00
Heavy baling bagging	2.75	"	3.00
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.06¾	"	.07
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.0625	"	.0650
Underwear Cutters, Bleached	.06	"	.0625
Silesias No. 1.....	.05	"	—
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached....	.06	"	.06¼
Blue Cheviots.....	.04¼	"	.04½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¼	"	.04¾
New Black, Soft..	.03	@	.03¼
Khaki Cuttings.....	.02¼	"	.03
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.06¾	"	.07
New Canvas.....	.06¾	"	.07
B. V. D. Cuttings...	.06½	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	2.75	@	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	2.00	"	2.25
Old Blue Overalls...	1.60	"	2.00
Thirds and Blues....	1.50	"	1.75
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.25
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....(nominal)			
Dutch Blues.....(nominal)			
New Checks and Blues(nominal)			
Old Fustians.....(nominal)			
Old Linsey Garments. (nominal)			
New Silesias.....(nominal)			

CHICAGO

Waste Paper

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.10
Blanks	1.50	"	1.60
Krafts	1.40	@	1.50
New Kraft Cuts....	1.60	"	1.75
Overissue News.....	1.00	"	1.10
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1.....	.95	"	1.00
No. 2.....	.85	"	.90

Celite in Paper Production

Pitch control is one of the subjects discussed in a newly prepared set of illustrated data sheets issued by Johns-Manville under the title, "Use of Celite in the Production of Paper." Also covered are the effects of Celite in increasing bulk and ink absorption as well as affording better brightness and opacity at lower cost.

Described in the data sheets are the properties of Celite 340. (G. E. brightness—95), a newly developed grade of light-weight filler, through the use of which the above desirable paper characteristics can be attained. Celite 305, a special grade for sheets of lower brightness is also described.

Copies of the bound set of sheets, DS Series 480, can be secured upon request to Johns-Manville, 22 East 40th street, New York, N. Y.

Southern Kraft To Buy Power Plant

The Southern Kraft Corporation, Mobile, Ala., subsidiary of International Paper Company, New York, N. Y., according to a press report, has concluded negotiations with Alabama Power Company, Birmingham, Ala., for the purchase of its steam-electric generating plant at Magazine Point, now serving the paper mill, for a stated consideration of $1,750,000 cash. The acquisition is subject to approval by the Alabama Public Service Commission, which is expected to give authority for the transfer of the property at early date. The station was built by the power company primarily to serve the mill.